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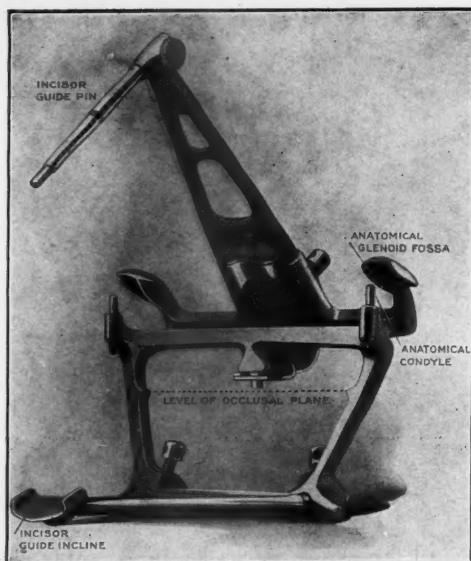
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THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., Editor

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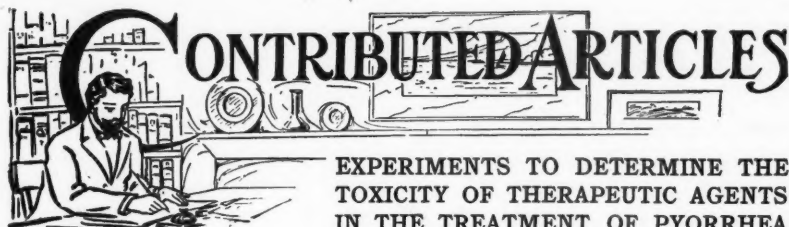
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EXPERIMENTS TO DETERMINE THE TOXICITY OF THERAPEUTIC AGENTS IN THE TREATMENT OF PYORRHEA ON ANIMAL CELLS GROWN IN VITRO

BY W. F. SPIES, D.D.S., NEW YORK

In the therapeutic treatment of all infectious conditions and of inflammations, the objects sought are threefold; first, to reduce the power of the attacking micro-organism, at least to the point of harmlessness; second, to accomplish the object with the minimum of irritation or disturbance of local tissue cells; third, to restore normal circulation of the blood and lymph.

In previous investigations to determine the efficiency of any particular preparation or method of treatment of such conditions, only one or two of the objects enumerated have usually been considered. Estimations of the germicidal efficiency of therapeutic agents have been frequently made and recommendations for use have been based upon them, without sufficient thought of the effect of such agents upon the tissue cells.

There have been no satisfactory laboratory methods for determining the effects of germicides and antiseptics upon living tissues, and of recording the effects so that they may be available to all. It is apparent that the minute tissue effects of the substances employed as antiseptics

or germicides should be determined by exact laboratory methods rather than the unorganized, individual observation upon which we have heretofore depended.

With the successful growth of animal tissue cells outside of the body, there came opportunities for testing the germicidal efficiency and tissue toxicity of various therapeutic agents used in the treatment of human infections. Before entering into a detailed consideration of the experiments in toxicity, it may be interesting to review briefly the application of the principles mentioned in the first paragraph to the treatment of pyorrhea.

Pyorrhea is inflammation of the tissues surrounding the roots of the teeth. In treating this condition, the therapeutic agents which have the highest germicidal efficiency with minimum toxic or tissue destroying properties should be selected. It is, of course, most desirable to destroy or render ineffective the pathogenic or pus-producing bacteria or other micro-organisms which may be present in a pyorrhea pocket. On the other hand, it is important that the indolent cells lining a pyorrhea pocket shall be so stimulated that they will promptly resume their normal activities. The use of powerful irritants defeats this purpose rather than aids it. The effect of such agents is to destroy the inflamed cells lining the pocket, to increase the area of inflammation and to retard the process of repair.

HISTORICAL

The later researches on the cultivation of tissue cells outside the body were developments from the original studies by Roux on surviving cells when isolated from the animal organism. It was here that the need for study of cell activities brought about efforts toward the prolongation of their life. A similar need led Harrison to further develop the method to the end that proofs of the origin of nerve fibres might be obtained. Complete isolation of the growing nerve from other tissue cells was a prerequisite.

The necessity for supplying nutrient material to the cells during growth brought about the utilization of various forms of lymph and blood plasma in the artificial cell cultures. It might be said that the present methods are largely based upon the work done by Dr. M. T. Burrows, in the Sheffield Biological Laboratory in Yale, 1910. In later researches, fresh, unclotted blood plasma served as a nutrient fluid for the cell cultures.

With the greater improvement in details of the technique made by Carrel and Burrows, there came the final procedure, which has had a wide application in attempts to solve a variety of problems. Thus, the methods of tissue cell cultures have been easily adapted to the study of an-

atomical, pathological and physiological problems. Carrel has applied it to the solution of problems in surgery and for estimating the various methods of preserving tissues. Lambert and Hanes have used it for the study of cytotoxins, while Murphy has made excellent use of the process in efforts to solve problems in immunity in tumor growth.

It remained for those who have undertaken the investigations about to be reported, to apply this procedure to the problems of determining the relative toxicity of germicidal and antiseptic agents upon tissue cell cultures. Prior to these studies, the only available laboratory procedures for the determination of toxicity of such products consisted in the subcutaneous injections of dilutions of them into animals, particularly white mice, the end reaction being the death or survival of the animal. This latter procedure constituted a more or less satisfactory process for determining the massive toxic doses of the agent or preparation in question. The results, however, constituted no satisfactory indication of the actual toxicity of any degree of dilution. Nor could the effects upon individual cells or small groups of cells be measured. It is obvious that the results of tests with massive doses would be entirely inappropriate for the determination of the finer degrees of toxic action against small groups of tissue cells, such as would be affected in the application of any therapeutic agent in the treatment of pyorrhea.

In the development of the method of testing tissue cell toxicity by the use of cell cultures, much time was spent in preliminary investigations. From these investigations, a procedure which gave reasonably satisfactory results was finally determined. The following is a description of the technique of that method.

TECHNIQUE

The medium for growing the tissue was obtained in the following way. The blood was collected from the jugular vein of a chicken by means of a sterilized cannula which had been previously immersed in olive oil. The blood was allowed to flow into a sterile thin glass test tube. Small pieces of ice were put around the base of the test tube on the dissecting table, so as to chill the blood immediately and prevent coagulation. When about half full, the tube was put in a dish of ice. About eight test tubes of blood were collected each time. As soon as possible these test tubes were packed in ice in a centrifuge tube and centrifuged for five minutes at 2,700 revolutions per minute. The clear plasma was then drawn off with a pipette and put in another small sterile test tube and the tube corked. These corked tubes were kept on ice until ready for use. Plasma kept in this way was found to produce good growth even when it was a month old.

In these tests, two parts of plasma were diluted with one part of Ringer's solution* and a drop of this medium was put on a cover slip with a piece of tissue and coagulation took place in a very short time. A hollow ground slide ringed with vaseline was then inverted over the cover slip. The cover slip was sealed to the slide with hot paraffin. The slides were kept in an incubator at 39° C.

The tissue for these tests was obtained from chick embryos 10-15 days old. The tissue was cut up into very small pieces under a magnifying lense. Sterile black paraffin in Petri dishes was found to give a better cutting surface than glass.

Portions of this finely divided tissue were transferred on the blade of the scalpel to sterile watch glasses containing 1 cc. of sterile Ringer's solution. These watch glasses were contained in sterile Petri dishes as a protection.

The substances to be tested were tincture of iodine (U. S. Ph.) and dentinol. These were diluted with Ringer's solution in the proportion of 1 of dentinol or iodine to 49 of Ringer's solution written as follows: 1-50, and in 1-100, 1-200, 1-400. The addition of 1 cc. of the dilution to 1 cc. of Ringer's solution containing the tissue gave the required dilutions. The tissue obtained from the chick embryos was exposed to the test substance for five minutes. It was then transferred by means of a pipette to another Petri dish containing 15 cc. of Ringer's solution to wash the tissue. These Petri dishes were then placed in the incubator until ready for planting. All these operations were done in a warm room and the solutions coming in contact with the tissue were warmed to prevent chilling it. Also all preparations for the test were made beforehand, so as to have the time elapsing between the cutting up of the tissue and the planting and placing in the incubator as short as possible.

RESULTS OF A REPRESENTATIVE TEST

The material tested and the results of a representative test are given in the table below and show the growth or non-growth of the tissue in the different dilutions on five minutes' exposure.

— No growth				
+ Growth				
DENTINOL		5 MINUTES' EXPOSURE		
		Specimen		
		No. 1	No. 2	No. 3
1-50	.	+	+	+
1-100	.	+	+	+
1-200	.	+	+	+
1-400	.	+	+	+

*Ringer's Solution is Sodium Chloride 0.7%, Calcium Chloride 0.025%, Potassium Chloride 0.03%, Distilled Water —

TINCTURE OF IODINE (U. S. Ph.)

5 MINUTES' EXPOSURE

	Specimen		
	No. 1	No. 2	No. 3
I—50	+	—	—
I—100	—	+	—
I—200	+	+	—
I—400	+	+	+

CONTROL

Tissue not treated	+	+	+
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The results indicate that under these conditions, a dilution of den-
tintol 1 in 50, is as free from toxic action as a dilution of iodine 1 in 400.

SUMMARY

A study of the literature on tissue cultivation and the results of the
foregoing tests bring out several very important points:

1. The primary object in growing tissue outside of the animal body is that it may be microscopically observed in the living condition.
2. Interesting observations on cell division and many other problems are better studied by using the method of tissue cultivation.
3. The culture methods offer a promising means for the study of the response of cells to directive stimuli.
4. That wound healing could be imitated in culture.
5. A satisfactory method has been developed for the comparative estimation of the toxic effects of antiseptic and germicidal agents upon tissue cells by the use of the cell culture method.
6. In the treatment of pyorrhea the therapeutic agents which have the highest germicidal efficiency with minimum toxic or tissue destroying properties should be selected.

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TO PREVENT MODEL FROM BREAKING

Most plate makers, occasionally break model of lower case, at angle, in separating flask preparatory to removing wax. This will be avoided by prying flask apart in front (at toe) instead of in the back (or heel). The action is like a hinge and naturally unhooks model.

WILL S. KELLY, D.D.S., Wilkes-Barre, Pa.

CLOSED MOUTH IMPRESSIONS*

BY SAMUEL G. SUPPLEE, NEW YORK, N. Y.

SECOND PAPER

DIAGNOSIS OF THE CONDITIONS IN THE MOUTH

It is very important to diagnose conditions in the mouth very carefully before starting to take your impression, for facts gained in this examination will be of great value to you in fitting your tray, taking the bite and finishing the plate as well as allowing for the settling of the denture.

In view of the fact that it is desirable to retain the upper denture principally by means of adhesion by contact, it naturally follows that the larger the area covered by the plate, the greater will be the retentive power. The smaller the mouth, the more difficult it is to secure the desired retention.

THE AREA OF THE PLATE

In examining the mouth it is important that we shall plan to make the plate cover as much area as the existing conditions will permit. This applies particularly to the length of the plate, antero-posteriorly. When the ridge is hard in front, the plate can extend to the edge of the vibrating portion of the soft palate.

When the ridge is soft in front, it must extend beyond the hard palate far enough so that the edge of the plate may press upon the soft palate and embed itself sufficiently to compensate for the amount the soft ridge will give when pressure is brought to bear on the front teeth.

By the old method of plate work, we should be limited in extending a plate back as far as desirable owing to nausea, but by observing the principles outlined this difficulty is eliminated.

POINTS FOR DIAGNOSIS

Every mouth should be examined in the following respects:

The character and extent of soft and hard tissues overlying the hard palate. Several pounds' pressure should be exerted with the tip of the finger to disclose any hard bone hidden under the mucous membrane, that proper relief can be placed on the model to allow for the settling of the denture. It is surprising how many hundred plates are failures due to lack of the proper relief in the median line which Dr. Haskell called particular attention to many years ago.

*This article began in the January 1916 issue.

Where the vibrating portion of the soft palate begins.

The character and extent of soft tissue if in the region of the ridges.

The location and strength of the muscular attachments on the buccal and labial border of the upper ridge and both sides of the lower ridge.

The space between the tuberosities of the upper ridge and the coronoid process and rami when the mouth is opened and closed.

METHODS OF DIAGNOSIS

Examinations should be made with the index finger with the mouth open and closed.

All unusual conditions should be recorded on a chart. They will aid in making the dentures or in satisfying the patient.

The chart used at the Gysi school of articulation is reproduced on this page. It follows very closely Dr. McLeran's design.

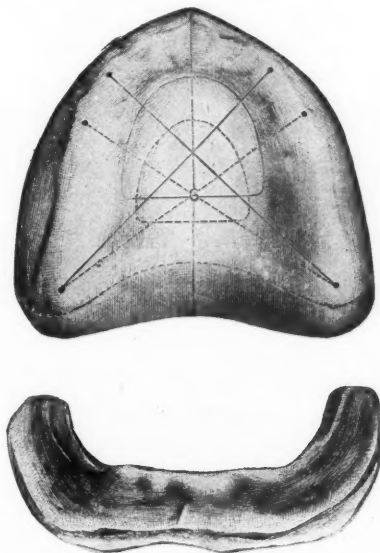


Chart for Artificial Dentures (After that compiled by Dr. McLeran, Omaha, Neb.)

In making this diagnosis it is advisable never to look into the mouth until you have made a careful examination with the index finger while having the patient open and close a number of times. By using the point of the finger as a measuring instrument, you are able to get a very complete idea of the possible height of the rim of the proposed plate.

By using heavy pressure with the index finger, you can determine the depth and area of the movable tissue overlying the rear half of the hard palate, and the conditions of the ridge in the region of the eight front

teeth. This should guide you as to the length of the plate antero-posteriorly.

The knowledge of these conditions will be of great value to you in case you should have trouble in securing the desired results.

HIGH AND LOW RIMS

The height of the rim will be determined by the range of movements of the attachments when the mouth is open and closed. If the action is short and strong, your rim should be low. If long and weak, your rim should be high.

VULCANITE AND METAL PLATES

If the entire vault and ridges are extremely hard and flat and the muscles attached close to the crest of the ridge, it is advisable to make a rubber plate for the patient to wear at least a year or so until the action of rubber causes the tissues to become softer, at which time a metal plate can be made with better results.

If the mouth has a tendency to soft ridges and an excess amount of soft tissue in the vault, it is wise to advise the patient to have a metal plate.

A temporary gold lined plate should be made for the patient to wear for a year to partially reduce the inflammation before making the metal plate.

If the patient is limited in means, very good results can be secured by refitting the old rubber plate and lining it with foil gold as a temporary plate for six months, to reduce the inflammation before making a gold or metal plate.

If the old rubber plate fits fairly well, place a gold lining in it without changing, as the shrinkage of the rubber plus the thickness of the lining will improve the fit sufficiently to last till the inflammation from the rubber is materially reduced before making a metal plate.

It is very unfortunate that so few dentists spend the necessary time to induce the patients to have metal plates.

From general observation the one great reason for this has been that they could not be so sure of securing a well-fitting denture.

There are three principal causes for this existing condition:

First, so little attention has been given to essentials of an impression that comparatively few plates would be a success were it not for the fact that the inflammation created by the rubber in contact with the tissue will compensate for the deficiencies.

Second, most metal plates are made for patients after they have been wearing either a temporary rubber plate, or because the mouth has been inflamed by wearing a rubber plate too long.

If a well fitting gold plate is placed in a mouth of this kind, it is only a short time when the inflammation is materially reduced and the plate does not fit.

As the gold plates have been made from the same imperfect impressions as rubber, and the fit was no better to start with, they certainly have a decided disadvantage as they have a tendency to reduce inflammation rather than to cause it.

Third, most gold plates have been swaged of metal heavier than 28 gauge and it is very difficult to make this material conform to the minute details of the model.

There are many ways in which these difficulties can be overcome, and they will be outlined more fully in a chapter on metal plates.

There are recent improvements by which we can cast and condense an aluminum plate from an artificial stone model and then eliminate the contraction by using a putty or shot swage to drive it to an accurate fit and incidentally further condense the metal.

The triple refined aluminum which can now be secured has practically eliminated all the former troubles of distintegration.

In this way we are able to eliminate many of the difficulties due to the expansion and shrinkage of rubber and make a cheap durable plate which on the whole is far superior to rubber.

HISTORY OF THE CASE

It is well to go into the history of the case in hand before promising the patient quick and positive results, for the question of muscle strain and muscular development will play a prominent part in view of the fact that we are going to use the muscles indirectly to hold our plates in their proper position.

GRADUAL DEVELOPMENTS

If the patient has been masticating for a number of years on a few miscellaneous teeth with the jaw abnormally closed, or masticating on one side only, or gone without teeth entirely, we cannot expect to open the bite and place the jaws in their correct position and expect them to be fully efficient and remain in the same correlation after the muscles have been fully developed in their new position.

This development should be accomplished in stages if we are to expect to give our patient the comfortable use of the plates during the development period. I shall attempt to deal with this subject in the chapter on "Muscle and Tissue Development."

The ignorance of this subject has been the cause of considerable loss in the average dental practice, as many dentists have made two or more sets of plates for patients, carrying them through this development stage

without knowing it, before securing permanent results, yet have received only one fee and have wound up with a dissatisfied patient, complaining because the plates were not made right the first time.

If conditions had been properly understood, arrangements could have been made for the patient to have comfort during the development stage, and pay for the dentures necessary to accomplish the desired results.

This article is expected to be continued.

SHORTAGE OF DENTAL PRACTITIONERS

The institution of a diploma in dental surgery took place comparatively recently in this country. The result is that the number of qualified dentists is far short of the requirements of the population, and that a large number of unqualified men practice. They are not prevented from doing this, but they must not call themselves dentists. This is a very small drawback, as they can exhibit sets of teeth and call themselves "tooth specialists." At a meeting of the General Medical Council, Mr. Tomes, chairman of the Dental Education and Examination Committee, submitted a report on the shortage of dentists. Communications had been made with the various licensing bodies for the possibility or curtailment of the curriculum without lowering the standard of dental practice. Some of the bodies questioned the existence of any shortage, pointing out that many qualified men are not fully occupied, the public being unconvinced of their advantage over the unqualified. Attention was also drawn to the lowering of the social status which arose from the intrusion of great numbers of unqualified persons, and to the fact that business men who had acquainted themselves with the existing state of things often considered that from a business point of view qualification was worthless or even a hindrance, and so did not put their sons at dental schools. The Incorporated Dental Hospital of Ireland alone considered the possibility that the simpler dental requirements sought by the poorer classes might perhaps be met by a lower grade of practitioner, though this was also suggested in one of several letters sent by private practitioners. The main conclusion was that no appreciable increase in the members of the dental profession can be looked for until the law gives further protection to the qualified man against the unqualified. A very insidious form of deception was pointed out. An unqualified man dare not put on his plate "dental surgeon," as this would render him liable to prosecution. This is avoided by putting beneath his name "dental surgery," which can be done with impunity.—*Journal American Medical Association.*

A TRIP REGISTERING THE WESTERN ATTITUDE TO ANATOMICAL ARTICULATION

By DAYTON DUNBAR CAMPBELL, D.D.S., Kansas City, Mo.

While in Kansas City conducting a class in Conductive Anesthesia, Dr. Arthur E. Smith of Cleveland suggested the trip. Having learned that I was to be one of the essayists of the Montana State Dental Association in July and that I planned to be at the Panama-Pacific Dental Congress in September, he said, "why not teach the Gysi method of Anatomical Articulation during the interval?"

Acting upon this suggestion, a small, strong, trunk was packed with dental materials, and appurtenances not readily found in every city, Gysi Adaptable Articulator, a stereopticon, Spence's Plaster Compound, Sorel's Cement, pure aluminum ingots, nearly two hundred and fifty lantern slides, etc.

At the meeting in Helena I constructed a full upper and lower set of dentures upon vulcanite bases for one of the oldest members of the Montana State Association. The Gysi Adaptable Articulator and Trubyte teeth were used. Trubyte teeth were employed in every case throughout the trip.

The following Monday found me in Spokane, Wash., where I brought to Mr. R. A. Monro's attention some of the results of my efforts in Anatomical Articulation (I carried exhibits on four Simplex Articulators).

Dr. Munro's interest secured an audience of about fifty dentists that Monday evening. The lantern lecture, the clinical material, and a free and informal discussion, made possible a very pleasant evening. At the close of the session, an opportunity was afforded those interested to join a class in Anatomical Articulation.

On account of such brief notice, many who expressed a desire to join these classes, were unable to arrange their professional engagements, so as to avail themselves of the opportunity.

It might be well to interpolate here that the writer was not idle while the classes were not in session. The most enjoyable part of my trip was spent in the various offices of these men assisting with difficult cases. Dr. R. I. Vandewall, of Seattle and Dr. Leland D. Jones of San Diego each had a case in which the patient presented a mouth with soft flabby ridges in the region extending from the cuspid to the bicuspid. This tissue was injected with a local anesthetic and with a pair of heavy gum scissors, cut away bodily. Such treatment leaves the part, after a period of two or three weeks, in a condition to receive a denture that will be permanent and eminently satisfactory.

Dr. Francis R. Fisk secured a large, well lighted room in the Old National Bank Building where we met every afternoon for four days. Two full upper and lower sets of dentures were made for different patients, one upon the Gysi Adaptable Articulator and the other upon the Gysi Simplex using the face bow, by the double vulcanization process; the other, a cast aluminum base for the upper and lower vulcanite. The evening of July 26th was spent before a called meeting of the Seattle Dental Society. Here we had the pleasure of renewing our acquaintance with Dr. C. J. Stansbery and that of meeting Dr. Frank W. Hergert who were members of the second Gysi class in Anatomical Articulation. Dr. Leo M. Trowbridge an upper classman of my college days gave us a splendid impression of the city and its boulevards and contributed largely to the enjoyment of our stay. Through the kindly assistance volunteered by Dr. Hergert and Dr. Stansbery, the Seattle class was organized without any particular effort on my part. The writer felt not a little complimented with the regular attendance of these two men, who were as familiar with the Gysi methods as the writer himself.

Although I have traveled somewhat extensively during my short career as a dentist, I have never visited in any other city where there were so many well lighted and cleanly kept offices, neatly gowned assistants, and broad, open minded dentists, as I found in Seattle.

The course in Seattle was started with a lecture on the 26th but was not completed until the following week.

In the meantime I visited Vancouver, British Columbia, to lecture before the Vancouver Dental Society on Tuesday evening. Here one of my Gysi classmates, Dr. W. H. Thompson, rendered indispensable assistance in organizing the class. Here could be seen at any time, soldiers in uniform getting ready to ship for the war. Great difficulty was experienced in passing my lantern slides through the customs. Practically no attention was given to the rest of my paraphernalia.

Through the courtesy of Mr. J. W. Henderson, manager of The Temple-Pattison Co., a room adjoining their dental depot was secured. It was from Mr. Basil Bayne of the Bayne Bros. Dental Laboratory that we learned to vulcanize gold-dust rubber in the spoon end of a wax spatula by heating slowly and until it became fluid. By this method a tooth may be attached to a plate in five minutes where otherwise it would take an hour and a half. Other rubbers cannot be used since they contain no aluminum; the heat conducting element is essential.

Some of the dentists in the class were so enthusiastic with this work that they wrote to their confrères, in Victoria suggesting that they organize a similar class. In the meantime I returned to Seattle and proceeded with the work there.

There were thirteen bonafide members to the Victoria class including Dr. Knight who does not appear in the picture, together with each man's student assistant. These students acting as apprentices are thereby fulfilling some of the dental requirements of the Dominion. This class was held in the Garesche Building adjacent to the offices of Dr. A. J. Garesche whose services and courtesies were much appreciated. Dr. H. LeRoy Burgess was a former classmate of mine in the Kansas City Dental College. Our hair-raising drive over Mt. Malahat in his powerful McLaughlin on high speed, and our little dinner at the beach with the other members of the class, will not soon be forgotten.



The classes in Portland, San Diego, Salt Lake City, and Denver were held from four to six in the afternoon and from seven to ten in the evening. We regret that these hours together with the rush of work, necessarily eliminated the photographer.

Those in the Portland class were Dr. Treve Jones, Dr. W. C. Adams, Dr. Chapin F. Laudervale, Benj. E. Gulick, and Dr. Clyde Mount of Oregon City. It was here that I had the pleasure of discussing Dr. J. Leon Williams' book on "A New Classification of Artificial Teeth."

While the Panama-Pacific Congress was not as large as some other dental meetings previously attended, every clinic and every lecture was well attended and several of these were, by request, repeated. This was particularly true of Dr. C. J. R. Engstrom's motion pictures showing

the use of the Gysi Adaptable Articulator. Here we had the pleasure of serving as a clinician in Dr. Frank W. Hergert's section, on "The Gysi Methods of Anatomical Articulation."

The men specially interested in Prosthetic procedure quite naturally became well acquainted with each other in discussing the relative merits of the Greene Method of Impression taking and the new Hall method of perfected plaster impressions. Dr. Rupert E. Hall of Houston, Texas,



Front Row, left to right: Dr. F. J. Lenz; Dr. G. J. Whitfield; Patient; Dr. C. J. Stansbery; Dr. D. D. Campbell; Dr. F. W. Hergert; Miss Moore; Dr. C. H. Wharton

Back Row, left to right: Dr. D. W. Bennett; Dr. N. H. Smith; Dr. W. S. Padget; Dr. L. M. Trowbridge; Dr. W. L. Harrison; Dr. R. I. Vandewall; Dr. E. S. Sweeney; Dr. C. R. Oman; Dr. H. W. Appleby; Dr. L. E. A. Hooley; Dr. E. B. Edgers; Dr. B. S. McCord

maintained that no material which offers resistance to the tissues was suitable for taking impressions, and claimed that the apparent success of the Greene method, was due to the fact that its use produced a vacuum over the entire maxillary surface or intaglio of the impression save on the periphery or the well massaged borders and post-dammed palate. This small vacuum over the entire surface of the impression, constitutes an element of unconscious deception, deceiving not only the patient but also the dentist himself. The vast majority of those questioned by the writer, admitted that they had never constructed a denture that fitted so

tightly and snugly after a few days' time as the tested compound impression.

I should like to mention here one lesson that I have learned thoroughly, viz.; that no patient should be given a demonstration tending to show how very satisfactorily his completed denture will be retained—rather, that more stress should be laid upon the personal equation represented in the patient. The patient should learn that successful dentures are pro-



Front Row, left to right: Dr. G. Dier; Dr. W. F. Fraser; Dr. A. J. Garesche; Dr. D. D. Campbell; Dr. Lewis Hall; Dr. A. H. Tanner

Back Row, left to right: Dr. S. G. Clemence; Mr. J. Crossan; Dr. H. H. Hare; Dr. H. LeRoy Burgess; Dr. E. H. Griffith; Dr. Alf. J. Thomas; Dr. H. J. Henderson

duced through two equal factors; *constructive* on the part of the operator and *adaptive* on the part of the one operated on.

The San Diego class composed of Drs. H. C. Collins, Leland D. Jones, Chas. G. Giddings, W. E. Allen, L. A. Viersen, J. L. Ross, W. Harmon Hall, F. J. Holt, L. G. Jones, Emma T. Reed, Kent Kerch and the following laboratory men: Drs. Alexander Swab, Frank V. Clayton, S. A. King, was held in the American National Bank Building. The class work here, in Salt Lake and in Denver, differed from that of the other cities in this respect, that instead of using the Gysi "Simplex" Articulator, the new Hall was substituted. Two full upper and lower dentures

were made for our patient upon the Gysi Adaptable and the Hall Articulator. In this manner the class was enabled to compare the relative merits of each. One of the special features of this class was the construction of two casts, pure aluminum bases, one being swaged upon the original Spence's cast (after having been polished), to correct the contraction due to the physical properties of the aluminum; the other being inserted without this precaution. Needless to say, the base which was not swaged was in no sense a perfect adaptation.

Upon our arrival at Salt Lake City, we found the dentists in a very receptive mood, due to the efforts of Dr. Fred W. Meakin and my former



First Row, left to right: Dr. T. R. Peden; Dr. J. E. Black

Second Row, left to right: Dr. W. R. Spencer; Dr. Wm. H. Thompson; Dr. D. D. Campbell; Dr. R. L. Coldwell; Dr. P. D. MacSween

Third Row, left to right: Grant (Patient); Dr. T. W. Snipes; Dr. Basil Bayne; Dr. H. T. Minogue; Dr. S. C. E. Muirhead; Dr. H. E. Thomas; Dr. J. W. Henderson; Dr. F. Pollock; Dr. R. S. Hanna

classmate Dr. Arthur C. Wherry. A class was soon organized with the following additional members, Drs. R. L. Folsom, A. C. Gartman, W. A. Marshall, Hyrum Bergstrom, R. E. Wight, Geo. F. Richards, Jr., C. W. Bird.

Dr. R. E. Wight, in an unguarded moment, told us we did not know how to mix plaster and proceeded to prove his contention. The method is as follows:

Place the desired quantity of plaster in a dry plaster bowl and instead of letting water from the faucet run into it, completely submerge the bowl and its contents. Set aside and watch until the bubbles cease to rise, pour off the excess of water and the mix is correct. To further demonstrate that the affinity of the plaster for water has been satisfied, and that there is no expansion, pour the mix into a two ounce glass beaker, the mix being perfect, the beaker will crack. Try it your way.

The last class was held in Denver with the following members enrolled: Drs. A. Clay Withers, Kent K. Cross, Anna M. Buell, V. Clyde Smedley, J. Larkin Howell, Ezra E. Schaefer, Richard C. Hughes.

This class formed a Campbell Study Club and has had two meetings since my departure. Reports of these meetings are sent to me with questions along Prosthetic lines. These are answered and suggestions made and work outlined for the ensuing month.

In all of the classes when discussing the new classification of teeth, stress was laid upon the manner in which teeth should be selected for individual requirements. Plane and autochrome lantern slides were effectively employed to show how in that much neglected field of Esthetics and Contour, the best results may be obtained.

The writer's judgment, based upon the general responsiveness with which the courses met, is that the dentists who thrive in the midst of competition, realize that they must master some method of Anatomical Articulation.

729 SHUKERT BLDG.

IMPORTANT INFORMATION FROM THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES

At the Annual Meeting of the Dental Protective Association of the United States, held at the Hotel La Salle in the city of Chicago, on Monday, December 20, 1915, the Secretary was requested to prepare a plain statement for publication in the different dental Journals, giving such facts as would be of general interest to the profession, and setting forth the status of the members of the Association with reference to the pending Taggart litigation.

NEW LIST OF MEMBERS IN GOOD STANDING

During the past year the Board of Directors revised the list of members, eliminating from the new mailing list the names of those who were

known to be dead, out of practice, or who did not pay the assessment levied in about 1898. On December 10, 1915, the latter were notified and given an opportunity to place themselves in good standing in the Association by paying the \$10 assessment. A few took advantage of this and remitted the amount; those who did not do so were dropped from the list.

NEXT TO THE LARGEST DENTAL ORGANIZATION IN THE WORLD

The new list of members in good standing now contains the names of 8,050 practicing dentists. These members are scattered geographically. A glance at the list would seem to reveal the fact that almost every town and city in the United States has one or more representatives in the Association. With the one exception of the re-organized National Dental Association, the Dental Protective Association of the United States is the largest Dental Organization in the world; and the best feature of all is that the total assets, as reported by the Treasurer at the last Annual Meeting, amount to \$35,508.37. Of this amount \$26,000 is invested in approved municipal bonds; \$6,000 is in individual notes secured by a corporation note for three times the amount; and the balance is in ready cash in a checking and savings account in the Northern Trust Company of Chicago. Thus it will be seen that the Dental Protective Association of the United States is a live, healthy organization, standing ready, as it has always done in the past, to defend its members against the unjust demands of patentees whose claims are worthless.

THE ASSOCIATION'S AGREEMENT WITH DOCTOR W. H. TAGGART

This brings us to a discussion of the status of our members with reference to the Taggart litigation. On December 5, 1910, the Board of Directors of the Dental Protective Association of the United States recognizing the value of the Taggart Method of Casting, after much discussion and many conferences, entered into an agreement with Doctor W. H. Taggart, a member of the Association in good standing and the sole owner of certain patents on this new and original method of making dental inlays and the like, by the terms of which members of the Association could obtain the permission to practice the Taggart Method of Casting for the life-time of the patents (seventeen years) with any machine he may then be using for the cash sum of \$15. This agreement also provided that any member of the profession who joined the Association within the time specified could procure such permission on the same terms. The time limit of this agreement expired, except for recent graduates, on February 9, 1913.

STATUS OF RECENT GRADUATES

A clause in the agreement provided as follows: "That those who entered the profession within one year from the date of the first court decision sustaining the validity of patents heretofore mentioned shall pay \$15 for the permission to practice the Taggart Method of Casting; those that enter the profession from year to year thereafter shall have the fee reduced by as many dollars as the number of years elapsed since the first court decision sustaining the validity of said patents. One year from the date of graduating or entrance into the profession, in all cases, shall be given in which to pay the stipulated fee." The phrase "entrance into the profession" has been interpreted by the Attorney for the Association as meaning that an individual enters the profession when he takes the State Board examination, receives his license to practice and has it recorded, whether he actually begins practice at the time or not. This explanation is here given for the benefit of the many recent graduates who are desirous of information regarding their standing under the terms of the Association's agreement with Doctor Taggart.

OWNERSHIP OF A TAGGART MACHINE CARRIES WITH IT THE PERMISSION TO USE THE METHOD

During the time from December 5, 1910 to February 9, 1913, when the terms of the agreement were open to not only our members, but to the entire profession, there were over 4,200 practicing dentists who availed themselves of the terms and paid the \$15. At this time Doctor Taggart was offering his *casting machine* for sale. This could be purchased through the Association for \$75 cash, or direct for \$100 cash. A great many of our members purchased the machine direct from Doctor Taggart before the agreement was made; a few subsequently purchased it through the Association. A considerable number of dentists, who were not members of the Association, also purchased the machine direct. The right to use the Taggart Method of Casting went with the purchase of a machine from whatever source; and the ownership of a machine to-day carries with it the permission to use the Method. This information is given and emphasized here for the benefit of those dentists who own a Taggart Casting Machine. Those of our members who purchased the machine must remember that whoever owns the machine to-day, no matter where or how it was purchased, holds the sole right to use the Method. In other words a machine cannot be sold to another and the former owner retain the privilege of using the Method.

STATUS OF MEMBERS IN TAGGART LITIGATION

This question is frequently asked: Where does the individual stand, with reference to the pending Taggart litigation, who is a member of

this Association in good standing and who did not accept the terms of the agreement with Doctor Taggart before the time limit expired? In reply to this important question, we will say that every member was notified individually and through the Dental Journals, not only once but several times, of the opportunity afforded by the terms of the agreement; and those who did not accept *forfeited their right to protection from this source by this Association*. They are hereby so notified that they may either settle direct with Doctor Taggart or make whatever other arrangements they see fit to protect themselves from the Taggart patents.

The question has also been raised as to the right of a member of this Association, who did accept the terms of the agreement with Doctor Taggart, to join other Associations organized primarily to fight Doctor Taggart. Every member of the Dental Protective Association of the United States who accepted the \$15 proposition, agreed by signing the by-laws, to abide by the same. Under Section XIII of said by-laws, the third paragraph reads as follows: "If said \$15 be paid before the entry of any decree or judgment finding any of Doctor Taggart's patents mentioned above in said agreement valid or granting damages for infringement thereof, the member is free to practice the Method with any machine he may then be using, and after the date of said decree or judgment, the member is not to purchase or use machines infringing Doctor Taggart's machine patents, except as aforesaid, and *no member of the Association is to defend or join in or contribute to the defense of any suit upon any of said patents while practicing the Method under such permission from Doctor Taggart.*" In this connection it may be stated that this agreement with Doctor Taggart was no voluntary effort on his part; and after he finally consented to what he felt was practically giving the method away (\$15 for 17 years amounts to about 88 cents a year) he demanded this clause on the contention that he would not grant a man the right to use the Method for practically nothing and leave him free to contribute several times the amount, if he so desired, to defeat him in court of his just due. The Board of Directors recognized the justice of this demand and consented to it. Thus this question is answered here in full.

MAY DENTISTS NOW JOIN THIS ASSOCIATION?

It is frequently asked if the doors of the Dental Protective Association of the United States are now closed to the profession, or if members of the profession may join at this time. In reply to this question we will say that, subject to the approval of the Board of Directors any member of the Dental Profession may become a member of the Association on payment to the Treasurer of a membership fee of \$10, and subscribing to the by-laws of the Association; but it must be with the distinct understand-

ing that the time limit of the agreement with Doctor Taggart has expired, except, as previously mentioned, for recent graduates or those who have not been in the practice of dentistry for more than one year.

WHY DENTISTS ARE JOINING AT THIS TIME

Though no immunity can be offered by this Association at this time from Doctor Taggart, except to recent graduates; nevertheless, dentists are joining the Association for the protection afforded from other sources. There has scarcely been a time since 1888, when the Dental Protective Association of the United States was first organized, when the Association has not had pending more or less patent litigation. It has been successful in all of its suits to date. There must be a reason for this. We believe it is due to the fact that the Association was organized on the right basis; for the sole purpose of defending its members against abuse by patentees whose claims were worthless, and not to defraud any man of his just due. The United States Government, through its patent office, grants patents to individuals whom it believes have something worthy, new, and original. In this manner it encourages inventive genius. It would be wrong for any Association to attempt to fight all patents, dental or otherwise, regardless of their merit. Such is not the policy of the Dental Protective Association of the United States; but let it be remembered, *that it stands to-day, as it has stood for nearly twenty-eight years, like a stone wall between its members and patent abuse.*

At the present time the Association is defending one of its members who has been sued for infringing a patent on a set of instruments for scaling teeth. In the opinion of the Board of Directors the principle involved in the patent, and on which it is based, is neither new nor original; and they felt that it would be dangerous for the members and the profession to have said patent validated in court. Therefore, they have directed the attorney to assume full defense of the suit on behalf of the Association.

In this brief article we have endeavored to cover and explain, so far as possible, all points which may arise now that the Taggart and other litigation is pending, in order to thoroughly inform the membership of the Association, and incidentally others in the profession who may be interested; and to avoid unnecessary correspondence. However, should anyone want further information or desire to join the Association, they may address the Secretary, 39 South State Street, Chicago, Ill.

By order of the Board of Directors: J. G. REID, President.

J. P. BUCKLEY, V.-Pres. & Sec'y.
D. M. GALLIE, Treasurer.

Chicago, January 4, 1916.

DEDICATION OF THE MILLER MEMORIAL MONUMENT

The Ohio State Dental Society Meeting for 1915 was one of especial interest as it was the scene of the Dedication of the Miller Memorial Statue, a monument raised by the united efforts of the dental societies of Ohio, though nearly every state contributed to this monument. The statue is situated near the library building, on the campus of the Ohio State University.

The memorial was unveiled by Miss Annie Brooks, of Alexandria, Ohio. The assembly afterward gathered in the chapel of the university where an address was delivered by Dr. E. C. Kirk, Philadelphia; remarks were also made by Dr. T. W. Brophy, Chicago; Dr. N. S. Hoff, Ann Arbor; Dr. Thos. P. Hinman, Atlanta; Prof. G. W. Knight, of the Ohio State University and by others.

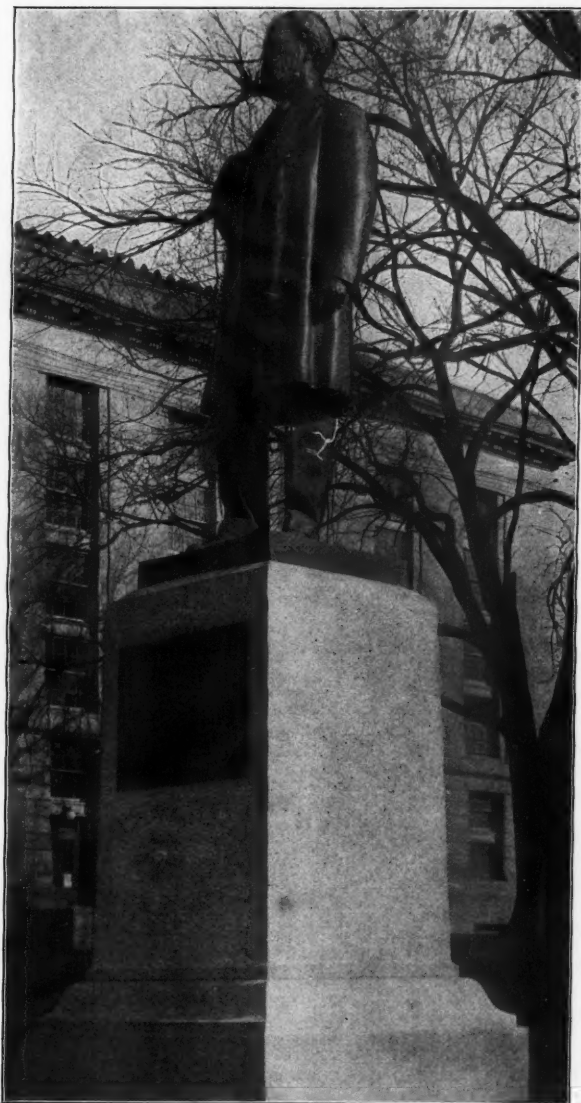
Dr. Miller was born August 1, 1853 near Alexandria, Ohio. He entered the University of Michigan the fall of 1871 and took his degree of Bachelor of Arts June, 1875. Deciding to adopt as his profession that of mathematical physics—he went to Scotland and studied in the Edinburgh University under Sir William Thomson. His health failing him through over-work, he sought rest, and it was during this period of recuperation that he met in Berlin, Dr. F. P. Abbot, who was the representative American dentist in that city. It was through Dr. Abbot's influence that he decided to return to America and take the dental course, graduating from the University of Pennsylvania in 1879.

Later he was called to accept the office of Dean of the Dental Department of the University of Michigan.

He practised abroad extensively as well as wrote voluminously, being the author of over one hundred books, and articles on every phase of dentistry.

A year previous to his death, Kaiser Wilhelm had conferred upon him the rank of privy medical councilor.

STATUE OF DR. WILLOUGHY DAYTON MILLER



Born, August 1, 1853. Died, July 27, 1907

CORRESPONDENCE

Editor DENTAL DIGEST:

(In answer to L. B. Brown October DIGEST, page 632). If Cookville, Tenn., is as hot a place as some parts of Australia, it is quite possible that the worm arrived in that tooth per medium of a blow fly.

Some years ago I was practicing in a town that was very hot and where the above fly was a pest. One day I had extracted a tooth and laid it down while I did something else, probably to console the patient. I was young at the time and perhaps nervous, but my astonishment was great when on going to remove the tooth out of sight I saw a worm in the cavity and one on the root.

For days I began to wonder if the gentleman was right who traveled selling pills that you "simply placed in your decayed tooth which removed the worm that caused decay and toothache."

It was sometime before I thought of the above explanation.

I am yours sincerely,

J. KEMPTHORNE,

Atherton, Marrickville, N. S. W., Australia.

ANSWER TO G. F. LOGAN, D.D.S.*

Books on pathology and surgery recognize two causes of disease, namely, predisposing and exciting. Dr. Logan recognizes only one, therefore he is wrong. (*See Items of Interest*, December, 1915).

Dr. Logan states that we all know that tartar is not the cause of pyorrhea. Now I have never seen a case of pyorrhea where tartar was not present or had been present long enough to cause the pyorrhea; but some dentists do not find it and therefore say it is not present.

I have a patient who had been treated for pyorrhea and at the last visit he made to his former dentist, he told the patient he did not have any tartar on his teeth; two days after the last visit to his former dentist he applied to me for treatment and I found sanguinary tartar (hard brown tartar) under the gum on ten or eleven of his teeth. If pyorrhea is caused by tartar, tartar must be the cause of pyorrhea.

If tartar is not the cause what is the use of removing the tartar to cure the pyorrhea or before curing pyorrhea why not cure the pyorrhea then remove the tartar? It is not possible. I have never seen a case of pyorrhea alleviated to any extent or cured where tartar was present, and that should be proof enough that tartar is the cause of pyorrhea.

Tartar is the cause of expulsive gingivitis. I do not like the word

**Items of Interest*, Dec., 1915.

pyorrhea as it is generally used, as expulsive gingivitis is a better term. Many dentists use the word pyorrhea whether pus is present or not. Now I believe pus must be present to use the word pyorrhea properly.

C. WAYNE MINGLE, D.D.S.,

December 26, 1915

731 W. Erie Ave., Philadelphia, Pa.

Editor DENTAL DIGEST:

I should like to inquire of you through the DIGEST, what foundation, in fact, there is for the current rumor that conductive anesthesia of the mandible is apt to result in permanent anesthesia of some of the parts.

I am perfectly familiar with the answer that Thoma and Fischer give to this question, but somehow I keep hearing of dentists who have heard that a friend of a friend's friend had such a case.

Do you suppose that such rumors have been passed along by dentists who did not possess the skill or the nerve to employ conductive anesthesia?

Do you think that sufficient time has elapsed since the introduction of this method to make the judgment of Thoma and Fischer absolutely authoritative and final on this point?

Yours very truly,
A.

Editor DENTAL DIGEST:

On page 8 of the January DIGEST the question is asked, "What is the best thing to do for a child three years old who breathes through the mouth nights and snores as loud as an adult? W. B. B."

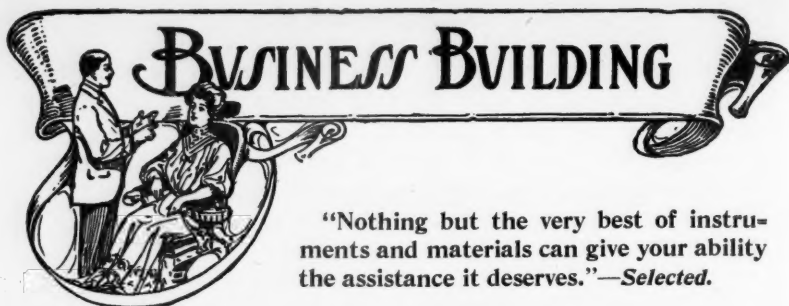
Take two strips of surgeon's plaster, $\frac{5}{8}$ in. wide and 1 in. long, have her turn the lips in, close the mouth tight, stick the two strips on each side of centre, sealing the mouth tight so she will breathe through the nose. In the morning take hold of one corner and pull the plaster off. This method continued nights for several years will form the habit of correct breathing and prevent the child from having colds every few days. Nine tenths of the colds children have can be prevented by this process. The child will sleep better and enjoy better general health.

LEVI C. TAYLOR,
Hartford, Conn.

Editor DENTAL DIGEST:

Can you inform me what to put into an electric sterilizer to keep the investment from rusting?

B. F. M.



THE BUSINESS SIDE OF PROPHYLACTIC AND RESTORATIVE PRACTICE *

BY W. F. SPIES, D.D.S., AND GEORGE WOOD CLAPP, D.D.S., NEW YORK

SECOND PAPER

AVERAGE INCOME HOUR FEES

Analysis of reports from a considerable number of dental practices in different parts of the United States seems to show that the following minimum fees are necessary for each of 1,000 annual income hours to maintain these practices in their present conditions.† These fees are exclusive of the costs of teeth and precious metals.

Class I Practices	\$1.45
Class II Practices	2.22
Class III Practices	3.13
Class IV Practices	3.94
Class V Practices	4.89

DIFFERENT FORMS OF SERVICE

The forms of dental service concerning which we are able to offer time reports and income-hour costs for different classes of practice include the more common forms of service comprised under the general headings Prophylaxis and Restoration, and thus include treatment of inflammation of the soft tissues surrounding the teeth, repair of decayed teeth and replacement of missing teeth. No figures are offered for the operations of orthodontia, oral surgery and full denture making.

PROPHYLACTIC PRACTICE

The word prophylaxis means "prevention" and prophylactic service in dentistry is devoted to preventing inflammation of the soft tissues and decay of the teeth. Obviously the best way to prevent further encroachment is to remove the causes of the pathological conditions.

*This article began in the January, 1916, number.

†These figures are taken from the forthcoming book "Profitable Practice."

Probably the commonest and simplest manifestation of a pathological condition of the soft tissues surrounding the teeth is first seen as a slight reddening of the free margins of the gums. If this condition is rightly diagnosed it usually responds readily to proper treatment. If the causes are not removed, and proper treatment instituted, the inflammation progresses with resulting loss of the tissues surrounding the teeth and final loss of the teeth.

Prophylactic dental service comprises the removal of deposits upon



Fig. 1. An illustration of a beginning case of Pyorrhea

the teeth, polishing the teeth, medicinal aid to the soft tissues and the institution of intelligent home treatment by the patient.

SIMPLE PROPHYLACTIC CASES

Simple prophylactic cases present inflammation of the margins of the gums due to the presence of deposits about the necks of the teeth. They are cases which a "cleaning" has usually been expected to relieve. The great trouble has generally been that the importance of the inflammation has been underestimated and the "cleaning" has been insufficiently thorough.

If the standard of this form of professional service be the removal of all irritants which caused the inflammation, and the polishing of all surfaces of all teeth to a condition which renders them acceptable to the soft tissues and protects them against decay of the enamel, it may

be asserted that proper prophylactic service cannot be rendered in the short time usually devoted to a "cleaning."

The following reports are from the records of cases at the Pyorrhocide Clinic. The work was performed by different operators who naturally work at different speeds, and the averages are probably very close to the time that would be required by a dentist of moderate speed who had instructed himself in the proper technic. The treatment of all these



Fig. 2. An intermediate case of Pyorrhea

cases was identical. It consisted of removal of deposits by instrumentation, of polishing by means of wood points and a polishing medium, and an average of 5 applications of Dentinol.

Thirty-one simple cases required from 1 to 6 hours each with a total of 131 hours and an average of 4 hours and 20 minutes, divided into sittings of about 30 minutes each.

The cost of these treatments involves the overhead charges, the remuneration and the cost of materials, except precious metals.

The cost of these treatments to the dentist may be tabulated as follows:

Minimum	Class I	Class II	Class III	Class IV	Class V
Hourly fee	\$1.45	\$2.22	\$ 3.13	\$ 3.94	\$ 4.89
Total cost	6.30	9.60	13.55	17.05	21.20

INTERMEDIATE CASES

In intermediate cases the inflammation is more extensive than in simple cases, there is infection and pus flow and some pocket formation,

but the teeth have not been loosened beyond the power of again becoming firm without splinting.

The treatment was identical in character with that in the simple cases except that more time was required for each. Seventy-nine cases required a total of 742 hours, with an average of 9 hours, 25 minutes divided into numerous sittings.

The costs in these cases would be as follows:

Minimum	Class I	Class II	Class III	Class IV	Class V
Hourly fee	\$ 1.45	\$ 2.22	\$ 3.13	\$ 3.94	\$ 4.89
Total cost	13.70	20.90	29.48	37.10	46.15

ADVANCED CASES

Advanced cases are marked by considerable amounts of extensive pocket formation and pus flow, and loss of the soft and hard tissues supporting the teeth, so that the teeth are often too loose to again become firm without splinting.



Fig. 3. An advanced case of Pyorrhea

Nine advanced cases in which the teeth were not splinted were treated in the same manner as the simple and intermediate cases, but required a total of 189 hours, or 21 hours each. The costs of these cases would be as follows:

Minimum	Class I	Class II	Class III	Class IV	Class V
Hourly fee	\$ 1.45	\$ 2.22	\$ 3.13	\$ 3.94	\$ 4.89
Total cost	30.45	46.60	65.75	83.74	102.69

Twenty advanced cases requiring prophylactic treatment and splints required a total of 420 hours at the chair, an average of 21 hours; a total of 96 hours of laboratory, an average of 4 hours 48 minutes per case; and a total cost for precious metal and teeth of \$369.25, an average cost of \$18.45 per case.

In the following table, the laboratory time is estimated at the same cost as chair time.

Minimum	Class I	Class II	Class III	Class IV	Class V
Hourly fee	\$ 1.45	\$ 2.22	\$ 3.13	\$ 3.94	\$ 4.89
Chair time	30.45	46.60	65.75	83.75	102.70
Laboratory time	6.95	10.65	15.00	18.90	23.45
Materials	18.45	18.45	18.45	18.45	18.45
Total cost	55.85	75.70	99.20	121.10	144.60

To be continued.

WHAT I THINK INLAYS COST

By F. D. H., LAMPASAS, TEXAS

(Discussing the answers to, "What will it cost you to fill this tooth.")

In the December issue of the DIGEST, in answer to, "What will it cost you to fill this tooth," there are published nine answers, with estimated costs running from \$3.70 to \$13. As each of these estimates seem to be figured very closely, and as there is such a wide difference, it must mean that there is a fallacy somewhere and that when it comes to actual cost we are all up in the air, and any kind of a guess would be more accurate than these figures. It is easy enough to tell what an operation has cost us after it is done, but it is impossible to tell what it will cost *before* it is done. Not one of these answers take into consideration the possibility of a failure in casting or fitting, and I am sure we all have them. Quite recently I had six large inlays of about an equal size and accessibility to insert, five of them were put in with very little trouble, but the sixth was cast four times before I was satisfied. Now, according to the estimates published, I should charge several times as much for the sixth inlay as any of the others. There are many cases where more time is consumed in filling in a very small inlay, than one that is much larger, but the patient does not take this into consideration, and we cannot get as much for it. The prize answer has, as an item of expense, \$1,200 for dental mechanic; this should not properly be considered, as this department should be self-sustaining; but if this is considered, how can we say which is paying the \$3 or \$5 an hour, the laboratory or the chair? It is possible that

the laboratory man is losing money for us, if so, our charges must be increased in proportion. The prize answer figures fifty minutes for investing, dehydrating and casting; all this should take only about ten minutes of actual time consumed, as the waiting time might be profitably used for something else. The time of a man qualified for manual labor only, is worth something like twenty-five cents an hour; but, should he spend several years at college, costing him, including the time spent, \$3,000, he is then in a position, by his superior knowledge, to earn, say \$3 an hour. If this \$3,000 is considered in this estimate of expense, and time still put at \$3 an hour, there is a doubling up, and we are making the patient pay for the money spent which enabled us to charge him for such valuable time. Again, if we put \$3,000 for college work, we should also include time and money spent for preliminary education, as without this we could not get the college work. Also ones wearing apparel is just as necessary an item of expense as magazines. This course of logic can be carried on indefinitely, but it seems to me, that more of these things should be considered, save what our time is actually worth, considering that we have, by preliminary work and expense, made it valuable. Brother Bill or father, has already settled for these preliminary items, and we have repaid him in love and affection and the account is closed. The question now is: what will this filling cost us as we are now situated? Burying the past, looking to the future, we start, with our present qualifications, to clear \$3,000 a year. We examine the cavity, but are unable to say what time will be required to fix it, we estimate the time from previous records, and place it at ninety minutes of actual work, upon the basis of one thousand producing hours a year. To earn the three thousand dollars, each hour must bring us in \$3. But from an actual record of office expenses, let us place the figure at \$1,000; (It does not cost me nearly so much and I have a larger than a \$3,000 practice). Upon this basis we should get \$4 an hour for our work, or \$6 for completing the inlay; in my opinion, about the amount an average person will stand for such work without kicking.

FACILITIES IN REMOVING TEETH FROM A RUBBER PLATE.—Put the plate in boiling water, keep it there for five minutes while boiling. You will then find the rubber soft and easy to remove the teeth with any pointed tool. While secured from cracking, they are removed thoroughly clean from rubber.

BROOKLYN DENTAL LABORATORY.

DENTISTRY FROM A FINANCIAL ASPECT*

BY PERCY A. ASH, D.D.S.

Editor "Commonwealth Dental Review," Lecturer and Examiner University of Sydney, Etc.

When your Hon. Secretary conveyed to me your very kind invitation to read a paper before this Society, he suggested the subjects of finance and dental jurisprudence, from which I gathered that you, like the great majority of dental practitioners, are pleased to hear something occasionally a little off the beaten track of technical and scientific dentistry. I regard it as a great compliment that you think me capable of writing an interesting article upon such subjects, but, as the time at my disposal must of necessity be limited, I shall leave the question of dental jurisprudence quite out of consideration, and deal with financial affairs. Perhaps, in order to justify myself, I should repeat that, before taking up the study of dentistry, I spent six years in banking and commercial pursuits, and subsequently went through four years in law as a duly articulated clerk to a solicitor, during which time I had opportunity of becoming well acquainted with both the practical and theoretical aspects of money matters as well as with the legal position in relation thereto.

In trying to decide what line of argument would prove most attractive to you, I have been greatly helped by some letters I received from dentists after the publication of my series of articles on "Financial investments." Among the many requests which came to hand, four appealed to me more than others, and I thought I could not do better than confine my remarks to them this evening. They are:—

1. Can you tell me how to succeed in practice?
2. If you write again on matters of finance, will you set out the advantages of keeping a bank account, and also let us have some definite information as to why cheques are "crossed," the word "bearer" struck out, etc.
3. Explain to us, if you can, how some men who have money to lend receive high rates of interest on good securities.
4. Will you give us a method of book-keeping whereby we can ascertain at any time just how we stand financially?

Any one of these requests involves a subject large enough to occupy an evening, but as they are all very important, I shall endeavor to say a little upon each. The most difficult one to answer is No. 1.

* (Read before the Odontological Society of Victoria, Sydney, Australia.)

HOW TO SUCCEED IN PRACTICE

We may safely assume that the person who asked this question had in his mind the monetary aspect of dentistry. We are forced to admit that, in the commercial age in which we live, a man's success in life is determined largely by the amount of money he makes. Though it is frequently very difficult to accomplish much without money, still the acquisition of it must not be looked upon as the main aspiration of human existence. What man of any genuine spirit wants to become rich through the beneficence of other people? What kind of a mind is it which is always craving for a substantial legacy under some wealthy person's will, or for a windfall from somewhere, which will enable him to live in ease, without the expenditure of a reasonable amount of physical and mental energy? No man with ambition of the right sort hopes for financial gain on such terms; he desires to work for what he gets, to make his money off his own bat, so to speak, and to honestly accumulate enough during his years of health and strength to see him through. Within the limits of our own profession, some of us may be high-minded enough to regard as successful anyone who has made a valuable contribution to the sum total of scientific knowledge, or who has reached the position of a prominent teacher in a reputable university or college, but, so far as the average man on the street is concerned, success in a professional or business calling is measured in money. Taking that, then, as the correct interpretation of my correspondent's enquiry, I shall set out on the rather thankless task of instructing others how to conduct their own business, and in the effort, it will be necessary to mention many commonplace details, which, though apparently insignificant, have to be reckoned with in the practice of dentistry where the personal equation is so much in evidence.

When you are asked to advise another how to succeed, the greatest difficulty you encountered is an insufficient knowledge of the qualities of the person seeking your help. If you have been successful yourself (presuming, of course, that you have always been honest), you naturally dilate on the many elements which have contributed to that end; but, more than likely, as you proceed, you will discover that your enquirer lacks most of the qualifications which you have found indispensable. It may be that some practitioner, whose career you have watched for years, will ask your advice; you know from experience why he has failed, but yet you hesitate to say so. For instance, it requires much courage to tell him that he lacks refinement, but yet you feel that there-in chiefly lies the reason of his failure. There is no occupation that I know of—not excluding medicine—where a good manner counts for so much as in dentistry, and by this I mean a manner that is inborn and not assumed, for the real is very readily distinguishable from the imitation, by people of gentle

birth. The fact is that very many of us in life are misfits; some in the profession should be at something which calls for more muscle and less brains; some who are in commercial enterprises lack the necessary qualifications to stand up against the keen competition in that class of business; some are born to follow and not to lead, and hence should be in positions where there is always a head to refer to.

H. Y. Braddon, in his book on "Business Principles and Practice," touching on this feature of human activity, says:—"In point of fact, in the large concerns the world over, banks, companies or other, there is always room at the top. One of the depressing features of business is the relatively large number of clerical toilers who are unfitted by temperament or lack of mental accoutrement, to go very far. Then, too, there are those others, happily fewer, who step out of the ranks as the result of intemperance or dishonesty. A really sound, well-trained business man need never wait long for a fairly good appointment. There is always room for him somewhere. The severe competition for places is amongst the mediocrities. From the employers' side it is always worth while to pay a good man well. Cheap men are rarely worth the outlay, especially if they are working discontentedly."

Men may have brilliant careers at universities; they may be what is generally known as "well-read men," and be the possessors of distinguished degrees, and yet be unable to make any headway in the cold, hard struggle for existence; that is to say, they have extraordinary capacity for absorbing the writings of others, but have no originality. While in all the professions to-day the possession of a degree from a University of repute is very properly accepted as evidence of proficiency, still it does not always carry the special qualifications necessary to success. Above all things, a man must have some natural ability. In no profession, probably, is this more noticeable than in law. As we look around us we see some barristers who have successfully passed examinations but are not blessed with that intuitive ability which counts for so much; others are able to add to their legal knowledge, keen powers of perception, ready wit, the natural facility to grasp an opportunity the moment it arises, and many other attributes which contribute to success. The one barrister conducts his case, relying almost entirely on his knowledge of law, which he gained from books and Acts of Parliament; the other, in addition to those qualifications, brings his personal resourcefulness to bear, observes the slightest discrepancy which arises during the progress of the case, snaps it up and makes capital out of it. The same conditions hold good very largely in our own profession.

THE AUSTRALIAN JOURNAL OF DENTISTRY.

(To be continued)

A SYSTEM OF DENTAL BOOK-KEEPING

By F. A. ROSS, D.D.S., GILROY, CAL.

My object in this article will be to outline a system of dental book-keeping which six years' use in practice has demonstrated to be simple, economical, complete in all essentials, and to require a minimum of time and effort on the part of the dentist. The system is not wholly original with me, being rather an amplification of a stock system on the market in loose-leaf ledger form, from which I have evolved the other details as I found a requirement for them in my practice.

Among the advantages of this system are the following: it leaves nothing to the memory, even for an hour; it enables one to strike a balance or check up his volume of business for any period of time, a week, month or year, in a few minutes' time; it requires only a few minutes' time daily, and an occasional couple of hours, say once a month, to index and transfer accounts and enter new leaves.

The first item in the system consists of a 4 x 6 in. sheet of paper, ruled as in Fig. 1, and which I call the day tag. On assuming business for the day I slip one of these sheets into the type-writer, noting the date in the space above the horizontal lines. Thereafter, during the day, upon dismissing a patient, and *before beginning the next operation*, I jot down in the lower space the name of the patient just dismissed, with a note, in detail, of the operation performed, together with the charge therefore, and credit any amount paid, in the spaces provided by the ruling at the right hand side of the sheet. This I do with each succeeding case throughout the day, and by using abbreviations in noting down the operations I find that one line is usually all that is required per patient, so that a sheet is usually sufficient to record all operations for one day. The use of the typewriter of course makes for economy of space. While its use is a refinement, and makes for neatness, order, and legibility, it is not essential. The notations can be made in pencil, and the sheet kept on the cabinet beside the chair if preferred. I did it that way for three or four years before I had a typewriter.

Now let us take a sample day's run in the office, and see how it works. Our first appointment in the morning is with Mr. Jones, for whom we devitalize the right upper first molar, and put in an amalgam filling in the left upper second bicuspid. We record it thus: F. Jones, T. 3, N. O. A. 13. T. stands for treatment; N. for novocain (denoting that I used peridental anaesthesia for pulp removal); 3 denotes the number of the tooth operated upon, as found on the page in the ledger devoted to Mr. Jones's case. Similarly, A. means amalgam, and the number denotes the tooth. He also paid a deposit.

JANUARY 1, 1916

F. Jones, T. N. 3; A. 13	4.50	25.00
H. Johnson		13.50
Willie Hooper, sed. tr. 1950	
Mrs. J. Smith, G. 9, analg.	9.00	
Mr. Willson, scaling. emet. Alcresta	5.00	5.00
Miss Allen, r. c. f. cr. pr. 5	3.00	
Mr. White, ext. 2-3, N20	3.50	3.50
Rent, \$30		
	\$25.50	\$47.00

Fig. 1. The Day Tag

Our next appointment is with Mrs. Smith, for whom we insert a gold filling in the left superior central. We also used analgesia in the preparation of this cavity. Hence, "Mrs. Smith, G. 9, analg." But during the time Mrs. Smith was in the chair Mr. Johnson called and paid his account of \$13.50. We put that on the tag then and there. We are pretty busy with that gold filling in Mrs. Smith's mouth, but that is all the more reason why we stop and jot it down. If we wait till after 5 P.M. it may slip our mind, and so lay grounds for future trouble when we send Johnson another statement and he comes in and declares he paid us, and we don't remember it nor have any record of it. Also little Willie Hooper came in with a toothache during the time we were busy with Mrs. Smith's case, and we sealed in a sedative treatment to keep him comfortable until another day when we could give him more attention. So we slip in a memorandum on our day tag, and thus perhaps save ourselves 50c. which we possibly would have forgotten to charge up to the account if we had waited until after our day's work was done before making up our record of the day's transactions, from memory.

Our next patient is Mr. Willson, a pyorrhea case. We scale some of his teeth, apply emetine solution, and prescribe a course of Alcresta tablets. He paid \$5 on account.

I wish to interpolate here that I find a second operating chair a great help in handling such cases as Willie's, which come in during the progress of a long operation. It minimizes the time lost by the interruption. Also, I wish to mention another thing which saves a great deal of time and lost motion. That is the use of an examination record. I use the Allen examination book, making a thorough examination of the teeth at the first sitting, outlining on the cut of the teeth given on each page the cavities found, treatments necessary, etc., also noting down any estimate made, agreements about payment of account, etc. Then at all subsequent sittings I work from this chart, checking off each piece of work as it is completed and noting any changes made from the original plan of the work. This saves time hunting around the mouth to see what to do next, avoids overlooking concealed cavities which were found in the first

diligent examination, and is a first hand memory tickler regarding the details of the case that one would not purposely overlook, but which are soon and easily forgotten. Estimates and agreements are later transferred to the permanent case record in the ledger.

JANUARY			
1916		Rec'd	Booked
January	1	\$37.50	\$36.00
"	2	5.00	23.00
"	3	5.50	22.00
"	4	13.50	19.50
"	5	26.00	20.00
"	6	18.00	11.00
"	8	7.00	24.00
"	9	3.00	14.50
"	10		28.50
"	11		20.50
"	12	6.50	29.50
"	13		5.00
"	15	1.00	21.50
"	16	19.50	43.00
"	17	6.00	22.00
"	18	107.00	43.00
"	19	15.00	32.00
"	20		14.50
"	22	5.00	29.00
"	23	129.00	30.50
"	24	8.50	29.00
"	25	20.50	14.50
"	26	5.00	19.50
"	27	26.00	30.00
"	29	67.50	51.00
"	30	6.50	16.00
"	31	14.00	22.00
		\$552.50	\$671.50

Fig. No. 2. Bannister cash and bill card (pink) for adding up totals

The other items on our day tag show that we filled the root canals in the right upper first bicuspid, for Miss Allen, and prepared the tooth to receive a crown; also extracted the right upper first and second molars for Mr. White, using nitrous oxid oxygen anesthesia for the operation. He paid in full.

Thus we note down on our day tag all the transactions of the day each in turn and at the moment, and at the close of the day's work add up the totals in the charge and credit columns. After transferring the items on the day tag to the individual records in the ledger, the day tags are filed in a drawer in the desk until the end of the month. Then I use a Bannister cash and bill card (pink) on which to add up the totals of all the day tags of the month, thus securing totals showing all charges and receipts for the month (Fig. 2). The day tags and the pink card, I then place in another drawer along with tags and cards of previous months. At the end of the year, by simply adding up the twelve totals shown on the pink cards I have a summary of receipts and charges for the year.

We now come to the case records. For this purpose I use a modification of the loose leaf ledger made by the Workman Manufacturing Company, 1200 W. Monroe St., Chicago. They call it their No. O special. My objections to their original stock record sheets are that there is some needless repetition in the headings; there are some headings I do not need, and some not given that I do need; I prefer a different arrangement of the headings; the original is provided with case record ruling on one side only. Therefore I had them print leaves to order (Fig. 3) which meet my requirements very much better, and by having both sides alike provides double the record space in a given bulk of sheets. I had these

Form Details:

- Name:** Mr. F. Jones
- Address:** 219 Maple St.
- Terms of Contract:** \$25.00 down, balance at completion of work
- Total:** \$50.00
- Signature:** Jones F.
- Grid Columns (from left to right):** Date, Day, Night, Exam, Fill, Root, Crown, Bridge, Plate, X-ray, Radiograph, Prosthodontics, Periodontics, Oral Surgery, Endodontics, Pedodontics, Orthodontics, Miscellaneous, Remarks.
- Grid Rows:** 1916, Jan 1, 5, 15, ... (with handwritten entries)
- Charges/Credits Section:**

CHARGES	Charges	Credits
	\$4.50	\$5.00

Fig. No. 3. Loose leaf ledger

printed before I took up the use of nitrous oxid. My next order will provide headings to include analgesia and anesthesia. I now make a note of its use in the "Remarks" column.

The manner of making up the case record is obvious from illustration No. 3. We have the patient's name and address, together with a memorandum of the amount of his contract and terms of payment. There is a space to note by whom he was referred to us. We have entered the first item of Mr. Jones's account, as taken from our sample day tag. Succeeding operations will be entered from other day tags as the case progresses.

The accounts in this loose leaf ledger are self indexed by means of yellow sheets having the letters of the alphabet arranged on projecting celluloid tabs, and the account leaves under each index sheet are arranged with projecting tabs on which the name of the patient is written so that it is instantly found upon opening the ledger at the proper index sheet.

Thus, to find the account of our first patient, Mr. Jones, we open our ledger at the celluloid tab "J." Without turning a single leaf, we see the name we are looking for on the projecting tab.

Also, all the other current accounts of patients whose names begin with J. are before us at a glance.

Accounts are kept in the original binder as long as active, or until paid. About once a month, or whenever convenient, paid accounts are removed and placed in another binder, called the transfer binder. Before inserting into the second binder the projecting tabs are cut off. A photographer's print trimmer facilitates this operation, and gives a true edge to the leaves. The transferred leaves are paged numerically, and for this purpose I use a Bates numbering machine for the sake of neatness and legibility, though it can be done with pen and ink if one does not wish to invest in a numbering machine.

The name on each account that is thus transferred is entered on the yellow indexing sheet in the original ledger, together with its page number, under vowel headings which make it possible to find a name in a minimum amount of time. Thus an account, whether active or closed, can be found in the one ledger, and located in a few seconds' time.

By thus transferring closed accounts, the original binder is reserved for active accounts, and when sending out statements at the end of the month it is not necessary to search through a large volume of accounts and weed out the active from the closed. In fact, I usually run through the ledger in a few minutes and type down on a plain sheet of paper, in alphabetical order, all the accounts requiring statements, and then make out statements from this list. By preserving this list, and at the next statement period adding the new accounts that have accumulated during the month, I reduce the task of statement rendering to a minimum.

Of course, in this system, one could, if preferred, substitute the card system for the loose leaf ledger. The principal advantage of the ledger is the reduction of bulk. One transfer binder will hold a thousand or fifteen hundred sheets. The binder posts are added to in sections as the binder fills up, and it is optional how many leaves are put into one volume. The difference in volume between 1,500 sheets and a similar number of cards, with indexes, is considerable.

The only other item in the system is an ordinary double ruled cash book in which are entered the receipts shown on the day tags, together with expense items as they occur. On adding up at the end of the month, the total in the cash book should tally with that on the pink card in the "Received" column. If it fails to do so, the month's receipts can be checked up on the day tags and the error found.

By having pink tags ruled to order, another column could be added to

include the expense account. At present I keep this only in the cash book.

At first, upon reading this over, it may seem as though there is considerable labor involved in this method. I have gone more or less into detail, and it may sound complicated in the telling, but in actual use the amount of time it requires is negligible. A few seconds after each operation, with five or ten minutes at the end of the day, and a couple of hours every month or so is all the time required, and it is time well spent I believe, considering the results it yields.

As a matter of fact, the whole thing can be turned over to an office girl, with the exception of the notations on the day tags. A thoroughly trained girl might even be entrusted with that too, but as office girls go I would prefer to attend to that myself. With all items correctly entered on the day tag, the girl's errors in entry can always be traced and corrected. Personally I prefer to attend to my own bookkeeping, limiting the girl's share in that to bill sending and looking up the accounts of people who call to settle while I am busy at the chair.

I have been prompted to present this article by the fact that several of my dentist friends, happening to see my system, have asked me to explain it to them, and upon my doing so have given it their thorough endorsement, and have adopted it in their own practice. Since it appealed so strongly to those who have seen it, it occurred to me that perhaps there might be others who would be glad to learn of it.

Should any of my fellow DIGEST readers find any helpful suggestions in this article, I shall be well repaid for the effort spent in its preparation.

FIRST NATIONAL BANK BLDG.

TWO GOOD PRACTICAL HINTS

WAXED SILK:—Purchase yourself a ball of silk twist or silkateen from your dry goods store; place same in cup with sufficient beeswax to cover when melted, boil thread in wax for one minute, remove your thread and let cool. Then you have a fine ball of waxed thread through and through, always ready for your use.

GOOD PROBE:—Remove wood from common lead pencil, take a stiff piece of wire, bend one end so as to make a handle; on the other end use small binding wire; fasten the graphite removed from pencil; sharpen graphite. Then you have a probe with which you can push your melted gold around without it adhering to probe.

C. I. FAISON, D.D.S., Dallas, Tex.

ESTABLISHED METHODS OF TREATMENTS MUST BE FOLLOWED

(*Wisconsin*).—In the case of *Allen v. Voje*, recently tried in the Wisconsin supreme court, the principle was laid down that a physician or dentist in treating a patient must follow the established methods of treatment. A departure from approved methods in general use, if it injures the patient, will render him liable, however good his intention may have been. It is however, not necessary that a physician or dentist adhere to ancient methods of treatment. He must keep abreast of the times. Some standard by which to determine the propriety of treatment must be adopted; otherwise experiments will take the place of skill, and the reckless experimentalist the place of the educated, experienced practitioner. When the case is one as to which a system of treatment has been followed for a long time, there should be no departure from it, unless the surgeon who does it is prepared to take the risk of establishing by his success the propriety and safety of his experiment. The rule protects the community against reckless experiments while it admits the adoption of new remedies and modes of treatment only when their benefits have been demonstrated, or when, from the necessity of the case, the surgeon or physician must be left to the exercise of his own skill and experience. The skilfulness of a physician in diagnosis and treatment should be tested by the rule of his own school.

It seems to be a sound and reasonable rule and well established by the authorities that the treatment of a physician or dentist of one particular school is to be tested by the general principles and practices of his school and not by those of other schools, and that a physician, surgeon or dentist is bound to exercise such reasonable care and skill as is possessed and exercised by physicians, surgeons and dentists generally in good standing of the same system or school of practice, or treatment in the locality and community of his practice, having due regard to the advanced state of the school or science of treatment at the time of such treatment. When a patient selects one of the many schools of treatment and healing to serve him, he thereby accepts and adopts the kind of treatment common to that school or class, and the care, skill, and diligence with which he is treated, when questioned in a court of justice, should be tested by the evidence of those who are trained or skilled in that school or class. (*Allen v. Voje*, 114 Wis., 1).

PROFESSIONAL CONDUCT

(*Kentucky*).—Kentucky Statutes, providing that the board of health may suspend or revoke a physician's or dentist's license, (1) for the pres-

entation to the board of any license which was illegally or fraudulently obtained, or the practice of fraud in passing an examination; (2) for the commission of a criminal abortion, or conviction of a felony involving moral turpitude; (3) for chronic or persistent inebriety, or addiction to a drug habit to an extent which disqualifies him to practice with safety to the people; (4) or for other grossly unprofessional or dishonorable conduct of a character likely to deceive or defraud the public is construed to create a definite standard by which professional conduct may be measured, and is a valid exercise of the police power.

And although a physician or dentist may violate the professional code by advertising, his act will not constitute a ground for revoking his license, unless his conduct is dishonorable, fraudulent, and involves moral turpitude within the contemplation of the above statute. (*Forman v. State Board of Health*, 162 S. W., 796.)

PAYMENT OF PROFESSIONAL SERVICES

(*Minnesota*).—Where defendant requested plaintiff, a dentist, to render defendant's niece professional services, who was a member of his household, her parents having been divorced and did not inform plaintiff that the patient was not his daughter or that he did not expect to pay for the services, he is chargeable for the value of the services rendered under an implied promise. (*Bigelow v. Hall*, 152 N. W., 763.)

CURATIVE PROPERTIES OF MEDICINE

(*Federal*).—One may not be convicted under the Food and Drug Act, merely because he advocates a theory of medicine which at the time has not received the sanction of the profession; but one guilty of fraud may not escape conviction merely because some one may honestly believe in the theory which he fraudulently set forth. In *United States v. American Laboratories* defendant was prosecuted on the ground of having fraudulently advertised the curative properties of certain patent medicines. The defense was that the medicines contained curative properties as advertised.

A jury in the United States District Court found the defendant guilty of fraud in advertising its medicines to contain properties which as a matter of fact was mere belief and speculation. The court held it unlawful to advertise any medicine as a cure unless known to be positive (*U. S. v. American Laboratories*, 222 Fed., 105.)

COUNTY NOT LIABLE FOR SERVICES

(*Georgia*).—Where a dentist, at the instance and upon the request of the sheriff, performs a dental operation upon one who is a prisoner in the

custody of such sheriff, an action cannot be maintained by the dentist against the county to recover the value of such services. (C. T. Nolan v. Cobb County, 81 S. E., 124.)

A REQUEST FOR ADVICE

Editor DENTAL DIGEST:

I have been for some time very much interested in your articles on the business side of dentistry, and am sending a more or less disconnected request for advice.

I have many hours that should be filled, that are not, and want my practice to come from the good I may render my patients by rendering to them such services as I would want rendered to me or my mother or my wife.

For such honest services I want an honest fee.

You probably know as well as I that many men with large practices render services, to the patients who trust them, that would not be passed in the school in which I received my dental education, Harvard.

By such work, to my mind, the patient is not getting the services to which he is entitled or a square deal.

The public is ignorant as to the proper care of the teeth, and the results following the neglect of such care.

If I use printer's ink in educating them along those lines, and to such as come under my care, as a result of such use of said ink, render the best services I am capable of, in an honest effort to help them by putting their teeth in good condition, am I not as ethical in a broad sense, as the society man who puts into their mouths such work as we all see, and takes good money for it?

I feel that fees are much too low for real honest work and that may be the reason why we see so much work that is not what it should be and is a disgrace to the profession.

How can a man properly cleanse the teeth for \$1?

How can he treat and fill, properly, a molar for \$3?

How can he use a high grade alloy like Twentieth Century, carve, contour, line with cement and polish for \$1 or \$1.50?

How many of them let the girl at the tooth counter pick out the teeth and the dental laboratory make the denture?

How many of them try to tell the patient that the alloy filling is a means of restoring the teeth to comfort and usefulness and that it may be

much better for them than a gold crown, and many times takes as much time and skill, and is worth money to them, the patient?

How many of them are telling the patient that they are selling services and not fillings, and will charge as much or more for a so-called silver filling, if it takes time, than for a small gold one?

How many of them are trying to get any more for their services than they did 10 or more years ago? Shouldn't they?

What is the difference between a so-called honest ethical dentist and an honest unethical one. I mean honest with himself and his patient?

Do you not think a man who uses printer's ink can be as honest with his patients as one who does not?

We must live and if it is an honest living what's the difference?

If you were in practice and it was necessary to increase your producing time, what would you do.

Very truly yours,
MASSACHUSETTS.

Editor DENTAL DIGEST:*

Having read the DIGEST for several years, it has occurred to me that you might know some dentist in or about Boston who has put into practice the ideas expressed in the DIGEST in regard to fees. About a dozen of the dentists in this county have formed a society, and we have been looking around for someone who would be willing to give us a talk on those lines. If you could suggest anyone whom we might get in touch with, it will be much appreciated. I wish to congratulate you on the work the DIGEST is doing in this direction. I believe it has done more for the advancement of dentistry than all the other journals combined.

Sincerely yours,
BOSTON.

CAN ANYONE GIVE INFORMATION?

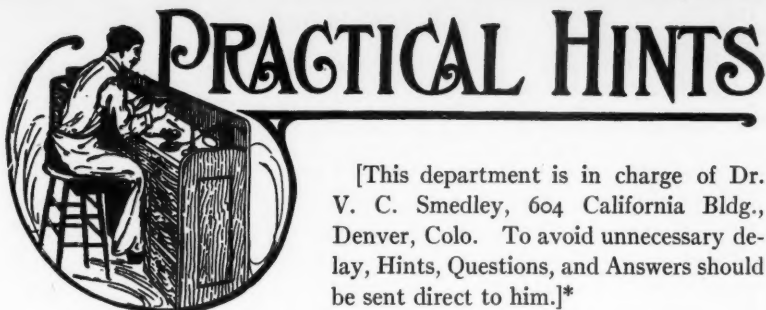
Editor DENTAL DIGEST:

I am one of the satisfied DIGEST family.

I wish you to let us have some information on how to choose a dental location. You have told us how to increase fees and save time, but in looking for a location, I want to know just how to go at it. Points to take into consideration, etc.

Yours very truly,
WASHINGTON.

* If our readers know of anyone who has put into effect the business building suggestions of The Dental Digest the editor will be glad to have him address "Boston," care of The Dental Digest, 220 W. 42d St., New York.



[This department is in charge of Dr. V. C. Smedley, 604 California Bldg., Denver, Colo. To avoid unnecessary delay, Hints, Questions, and Answers should be sent direct to him.]*

A PAINLESS WAY TO OPEN A SORE TOOTH.—In opening up a very sore tooth when the patient cannot stand the pressure of the bur, I find the following method very good. Take your dentimeter and make a wire loop as if taking a measurement for a crown. Then let your assistant pull on the dentimeter while you open up the tooth. Or better yet, let the patient help you by holding dentimeter, then if it hurts they will equalize the pressure by pulling a little harder.—JAMES J. JONES, D.D.S., Scottsbluff, Nebr.

TO REPAIR A HOLE IN A BICUSPID OR MOLAR CROWN.—Take a clean piece of asbestos paper and cut out a disc that will fit inside the band. Place occlusal surface on something flat and press the disc down firmly and evenly. Moisten several pieces of asbestos and fill up the crown. Place on a charcoal block and turn on the flame of the blowpipe. Cut a piece of solder large enough to cover the hole and place it in position. Flux well and turn on the heat. When the solder starts to curl on the edge, turn it down with a pointed slate pencil, and keep applying the heat until the solder is caught all around. With a little practice, you can drag solder around almost any place with an ordinary slate pencil. If the crown is on a bridge, wrap the bridge with asbestos paper, wiring it on, and proceed as above.

AN ORDINARY HAIL SCREEN.—If you are afraid that your investment will crack and pull away when soldering a big bridge, invest the bridge on a piece of hail screen cut to suit the case. A piece of hail screen also makes a very handy thing to place over the spider of your gas or gasoline stove on which to place an investment of any kind.—HARRY M. TWEEDY, D.D.S., Smith Centre, Kansas.

TO TIGHTEN OLD PLATES.—If you want to delight the next patient for whom you repair an upper plate, just previous to investing, flow a rounded "bead" or ridge of wax just inside the border clear around the periphery of the plate.

*In order to make this department as live, entertaining and helpful as possible, questions and answers, as well as hints of a practical nature, are solicited.

Did you ever notice blisters on the plate where a bubble was, in repair jobs? Well, that is what happens in this case. The wax burns out and the rubber expands there.—J. F. ADAMS, D.D.S., Clinton, Ind.

TO REMOVE AN INLAY MODEL FROM A DIFFICULT CAVITY.—Hold the end of a piece of number 40 copper wire in the flame of an alcohol lamp until a globule of metal is melted on it. Seize the wire about a sixteenth of an inch from the end with a pair of dressing pliers. Heat the pliers until the globule is hot, place it against the wax model permitting the metal to melt into the wax, and cool it. Force applied to the wire now will cause the wax model to leave the cavity along the lines of least resistance. The wire may now be cut close to the wax and the sprue attached.—F. H. MILLER, D.D.S., Aylmer, Ont.

[I would suggest the substitution of gold for the copper wire here, as the globule of copper would mar your finished inlay, if it happened to be cast into an exposed portion of same.—V. C. S.]

WHEN GLOWER BURNS OUT IN THE DENTISCOPE LAMP.—To avoid delay and inconvenience while waiting for a new burner from supply house, remove lighting device from the ground glass shade and turn on the current; when the heater is at the maximum temperature touch the broken glower together and it will fuse at the break; have used one glower over a year that has broken several times.—GEORGE E. COX, D.D.S., Wilmington, Delaware.

A METHOD FOR THE CORRECT APPLICATION OF DAVIS CROWNS TO ROOTS.—To prevent failures due to displacement of crown and weakening of cement during process of cementation, caused by movement when holding crown with fingers. After the root is treated and filled, grind root as usual, apply post to root, having collar on post flush with surface of root, apply crown and grind where necessary, and after obtaining the conditions necessary for an ideal substitute of the missing tooth, cement the post in the root. Then attach the crown to post and root with gutta-percha, obtaining correct alignment of crown before hardening of gutta-percha. If opposing tooth strikes the crown, grind at this point. (If crown becomes loosened during grinding re-attach with gutta-percha.) After hardening of gutta-percha and conditions are ideal, take impression (not bite) of crown and adjacent teeth with modelling compound, chill and remove. Remove crown and all gutta-percha, dry with chloroform and hot air. Apply crown to root with cement, place impression over crown and apply steady pressure, until cement has hardened. Remove impression and trim away all excess of cement. If the technic is still fully performed and all moisture excluded you will get results impossible with the old method of holding with the fingers. This method consumes

more time but it pays in the end.—MONREITH HOLLWAY, D.D.S., Buffalo, N. Y.

EXTRACTING A POST FROM A FRAIL ROOT.—In extracting a post from a frail root with a post puller there is always danger of splitting the root. The likelihood of this happening may be reduced to the minimum by taking a piece of twenty-eight gauge German silver plate, cut a hole through it large enough to pass over the post and trim into a disk about the size of the root face. This disk may then be placed on the root with post projecting through its center. The post puller may then be placed in position and as it is tightened the part of the instrument which is intended to bear on the root rests against the metal disk and does not slip or spread and the post may be drawn with safety. If the face of the root is uneven from decay, a bit of base-plate gutta percha may be molded into the cavity, the disk pressed into place and chilled with cold water, giving an even base for the instrument to press against.—J. A. BULLARD, D.D.S., Chicago, Ill.—*The Dental Review*.

QUESTIONS AND ANSWERS

Question No. 1.—What metal is best for castings, to be used under gold crowns, for the purpose of building up badly decayed roots to support crowns? Would there be danger in using coin silver, containing ten per cent. copper, in case the crown failed and exposed the coin silver to the secretions of the mouth?

Question No. 2.—Would like the name and address of an insurance company, that insures dentists against malpractice suits. I believe every dentist should carry such insurance, when our doctors are blaming crowns, and bridges, whether they are sanitary or not, for case after case of systemic disease.—G. W.

ANSWER No. 1.—I see no serious objection to the use of coin silver for the purpose you suggest, though I cannot speak from experience with it. I do, however, use pure silver for this purpose and find it entirely satisfactory.

ANSWER No. 2.—I am told by an insurance man here that any of the companies carrying protective policies for physicians and surgeons insure dentists on the same basis. There are probably other companies doing the same thing, but he gives me the names of these: Fidelity & Casualty Co., and Maryland Casualty Co. Rate \$15 per thousand. Limit \$5,000 for one suit and limit \$15,000 for one year.—V. C. S.

Question.—Will you please give me a simple method of employing the aqua regia-ferric process of separating gold or gold alloy from platinum.—C. B. K.

ANSWER.—Answering your question on how to separate platinum from gold alloy. First add silver to reduce alloy to 6k. Dissolve silver and copper with nitric acid and wash residue thoroughly in water. Dissolve residue, which should now be pure gold and platinum, in aqua regia (one part hydrochloric and two parts nitric acid). Precipitate gold with sulphate of iron. Filter and wash. Precipitate platinum with solution of ammoniac. Filter and heat in crucible to white heat, just burning filter paper out. This when cool gives you sponge platinum which had best be sent to a platinum refiner to melt and roll.—V. C. S.

ANSWER.—In Practical Hints, November issue of the DENTAL DIGEST, Dr. M. M. Brown, of Macon, Miss., under hint number three, refers to the use of a sheet of bibulous paper for squeezing out the excess of mercury from amalgam. A better way still is not to have any excess mercury in the amalgam. Secure a little mortar and pestle, first pour the desired amount of mercury in the mortar, then a little alloy, and mix in; then continue to add alloy until all mercury is mixed in to a firm mass; take amalgam from mortar with fingers to a piece of rubber dam, in this rub rapidly in palm of hand in order to evenly unite all particles of alloy and mercury. In this way you have a perfect mixture and a clean filling material.—M. L. BROCKINGTON, Florence, So. Car.

ANSWER.—In the November issue of the DENTAL DIGEST I find a recommendation of atomized alcohol for cleaning the synthetic slab and eyeglasses. I have found another excellent use for this alcohol, namely cleaning mouth mirrors which have become dirty in any way from use in the mouth. While I am working for the same patient I do not claim to sterilize my mirrors by this method. The alcohol when wiped off takes whatever dirt there was with it, and leaves the mirror clean and clear which is a great aid to one who works almost entirely with the mirror.—HORATIO C. MERIAM, D.M.D., Salem, Mass.

ANSWER.—In the last issue of the DIGEST I read about coating strips and discs with soap to facilitate polishing by doing away with unnecessary friction and to also aid in recovering the otherwise wasted gold. Would say that I have long been using cocoa butter for this purpose and believe it better. It is put up in handy form and less objectionable to the patient. Also instead of coating engine belt with beeswax and resin to make it hold tightly, try slipping a small rubber band into the pulley groove on both engine and handpiece. It will work. You can run the belt more loosely thereby prolonging its life and saving wear on all bearings concerned. The belt dressing previously mentioned doubtless would dirty the belt and leave a bad streak on your white coat should the belt chance to rub the latter as is often the case.—F. W. M.

AN EPITOME OF CURRENT DENTAL AND MEDICAL
LITERATURE

[*The Dental Review*, January, 1916]

Contents

Original Communications

- *The Dental Pulp and Periapical Tissue: Diagnosis and Prognosis of Their More Common Pathologic Conditions. By William H. G. Logan.
The Business Side of Dentistry. By Guy F. Corley.
Root Canal Preparation. By J. R. Callahan.
Why Some Fillings Fail. By R. Rodgers.
*Extraction of Teeth as a Surgical Operation. By E. L. Teskey.

Proceedings of Societies

Illinois State Dental Society, Fifty-first Annual Meeting Held at Peoria, May 11-14, 1915.
Wisconsin State Dental Society, Forty-fifth Annual Meeting Held at Oconomowoc, July 13-15, 1915.
Chicago Dental Society.

Editorial

The Best Year Yet.
Practical Hints Memoranda.

THE DENTAL PULP AND PERIAPICAL TISSUES: DIAGNOSIS AND PROGNOSIS
OF THEIR MORE COMMON PATHOLOGIC CONDITIONS

BY WILLIAM H. G. LOGAN, M.D., D.D.S., CHICAGO, ILL.

Cardinal symptoms and findings accompanying that contraindicate the effort to save the pulp's vitality when the root ends are fully formed.

A.—All pulps exposed by dental caries should be considered infected, therefore removal in every instance is indicated. B.—When a pulp has been exposed by accident and the tissue injured, for example, by excavator or bur, the vitality of the pulp cannot be permanently maintained. C.—Remove the dental pulp in those cases where carious dentin is found lying in contact with it. D.—When the paroxysms of pain have been of one or two hours' duration or have become constant and occur with or without the application of a known irritant and are most pronounced at night, the prognosis of this pulp's vitality is hopeless. E.—When a tooth becomes sore under pressure as result of a periapical inflammation caused by the pulp disease spreading by continuity to the tissues beyond the root end, begin treatment that is to terminate in the filling of the root canal. F.—Every pulp should be removed when the pain is momentarily relieved by the application of cold water.

In the application of the above statement, let it be remembered they

only have reference to pulp diseases in teeth that have reached full development.

Pulp capping with our present technic should be looked upon as a doubtful procedure in all cases after the root end has formed. I believe to cap a pulp that has been exposed by either dental caries or from the removal of carious dentin that was lying in contact with the pulp is to court positive failure. However, many careful operators have successfully capped pulps before the root end had fully formed, that were exposed in the process of cavity preparation by opening through a thin layer of normal dentin. I believe there is an agreement that it is wise in many instances to cap pulps for the purpose of maintaining the pulp's vitality as long as possible, when we wish the benefit of the activity of the odontoblastic cells to complete root end development.

EXTRACTIONS OF TEETH AS A SURGICAL OPERATION

By E. L. TESKEY, SHABONNA, ILL.

Impress on the patient that the extraction of a tooth is no simple operation, that it requires skill and care and that the result may be serious if not properly performed; then quiet the pain, put the tooth at ease, give a cathartic and send him home until the next day. On his return proceed to prepare the mouth by cleaning all the teeth, washing out the nose and throat, rendering the field as aseptic as possible. That this cannot be complete is no reason that it should not be attempted. Have all instruments and hands sterilized as carefully as for a major operation; now proceed as the case indicates, using a general or local anesthetic as desired. Be sure that there will be no pain and that you will have plenty of time to do the work thoroughly. Remove all of the tooth, using no more force than is needed, and if it is necessary to lacerate the gum, dissect it out of the way, so that there will be no contusion of the soft tissue. Carefully wash out the wound with sterile water and replace the gum tissue in normal position; dismissing the patient for the day. The patient should be fed with soft food until the wound is healed. The dentist should see the case every day until there is no danger of a secondary infection.

I know you will say that the patient will object to the trouble and be unwilling to pay for it, but I believe that when the patient understands the seriousness and importance of the operation these would be secondary considerations. In the meantime work toward this end.

Within my memory the public went to the jewelers and traveling peddlers for their glasses, but now the oculist has no trouble in getting good fees for his services and the patient is satisfied. The first thing is to realize the seriousness of the operation ourselves and then educate

the public. This is an age of education; the people are awaiting the teachers; it is up to you.

In conclusion I can see it in no other light than that the general surgeon is either a charlatan and working for effect, or the dentist is careless and not giving the people the best that is in him.

[*The Dental Cosmos*, January, 1916]

Original Communications

- *Mandibular Anesthesia. By Theodor Blum, D.D.S., M. D.
- The Application of Local Anesthesia to Dentistry. By Leo Stern, D.D.S.
- Indications for and Construction of Fixed or Removable Bridge Work. By Thomas P. Hinman, D.D.S.
- The Importance of Biology as Applied to Dentistry. By Dr. Ch. F. L. Nord.
- The Germicidal Efficiency of Some Copper Cements Used in Dental Work. By R. F. Bacon, Ph. D.
- A Contribution to the Study of Faces. By L. G. Singleton, D.D.S.
- *The Irrationality of Bacterial Vaccines in the Treatment of Pyorrhea Alveolaris. By A. H. Merritt, D.D.S.
- Practical Value of Mouth Hygiene. By H. W. Wiley, M.D.

Correspondence

- A Rejoinder by Dr. Rhein.
- "Square Deal" Examinations.

Proceedings of Societies

- Pennsylvania State Dental Society.
- Susquehanna Dental Association of Pennsylvania.

Editorial Department

- Retrogressive Reform.
- Legal Protection of the Examinee.
- Bibliographical.
- Review of Current Dental Literature.
- Periscope.
- Hints, Queries, and Comments.

MANDIBULAR ANESTHESIA

BY THEODOR BLUM, D.D.S., M.D., NEW YORK

Oral Surgeon and Dental Röntgenologist, New York Post Graduate Medical School and Hospital

WRITER'S TECHNIC

I will now describe the technic of mandibular anesthesia which I am accustomed to teach. It is similar to Seidel's method, modified only by using the index finger of the left hand for palpation and the right hand for injecting on the right side, and *vice versa*; the bevel of the heavy steel needle is turned toward the nerves and away from the bone.

Let us say, for example, that we wish to give a mandibular injection on the right side. The patient is requested to open his mouth, and with the index finger of the left hand, the external oblique line is found. Now the ball of the same finger is placed over the retro-molar triangle in such a manner that the fingernail touches the internal oblique line; this finger is moved slightly laterally to free the internal oblique line—in which position the finger remains throughout the injection—and the area is painted with iodine; the syringe is grasped with the right hand, like a pen, and the needle is run 1 cm. above the occlusal plane of the lower jaw through the soft tissues directly to the internal oblique line; the needle is retracted somewhat, so as to release it from the periosteum, and moved—the syringe is in nearly sagittal direction—mesially until one finds no more resistance to proceeding backward, *i. e.* when, after passing the internal oblique line, one arrives at the mesial aspect of the ascending ramus. About five drops (0.3 cc.) of the solution are injected, to anesthetize the lingual nerve. The point of the needle is placed in contact with the mesial aspect of the ascending ramus by turning the syringe to the opposite side, and remains so while going backward a little over 2 cm., all told. The point of the needle is now in the upper half of the mandibular sulcus, where we inject the remainder of the solution (1.5 cc.).

To anesthetize the left side, the right hand is used as a guide, and the syringe is held with the left. A little practice will overcome the difficulty of working with the left hand.

In a few minutes, upon questioning, the patient will state that his lip and tongue feel numb—"swollen, hot, cold, empty, like electricity, without feeling," etc. In almost every case the molars, bicuspid, and the cuspid are completely anesthetized in from ten to twenty minutes. Before starting to operate, the mucous membrane is tested by compressing the gingiva with a pair of pliers on the buccal side of the cuspid and the tooth one wishes to work upon, and lingually. If, after twenty minutes, pain is felt in the cuspid region, a second mandibular injection must be given. In case the buccal mucous membrane in the molar and bicuspid region only is sensitive, *i. e.* if supplied by the long buccal nerve, this part must be desensitized with a horizontal injection in the apical region of these teeth. In infected cases conductive anesthesia of the long buccal nerve may be resorted to, injecting beneath the mucous membrane of the cheek below Steno's duct (Williger).

The anastomoses of the inferior dental, lingual, and mental nerves explain why the middle portion of the lower jaw with the incisor teeth is not anesthetized. To obtain complete anesthesia of half of the lower jaw the mental foramen of the opposite side must be injected—also

lingually at the median line. I have found mandibular anesthesia to last over two hours.

THE IRRATIONALITY OF BACTERIAL VACCINES IN THE TREATMENT OF PYORRHEA ALVEOLARIS

BY ARTHUR H. MERRITT, D.D.S., NEW YORK, N. Y.

The author of this able article sums up his conclusions as follows.

CONCLUSIONS

The irrationality of the use of bacterial vaccines in the treatment of pyorrhea is proved:—

- (1) The exceeding complexity of the bacterial flora of pyorrhea alveolaris, of which comparatively little is known.
- (2) The absolute lack of evidence that any of the organisms present sustain a causal relation to the disease.
- (3) The unreasonableness of expecting a vaccine to affect favorably a disease when the organisms associated with it are practically beyond the influence of the antibodies contained in the blood and lymph, as they are in pyorrheal pockets.
- (4) The impossibility, with our present cultural methods and limited knowledge, of preparing a vaccine which would be at all representative of the bacteriology of the disease.
- (5) The evidence already at hand which indicates that there is no *qualitative* difference between the bacteriology of pyorrhea and that of the normal mouth, and that the difference noted is a *quantitative* one only.
- (6) The probability that the infection in pyorrhea is purely secondary.
- (7) The absence of any proof that pyorrhea which has not yielded to local treatment can be cured by vaccines, or that their use will prevent recurrence.
- (8) The inadvisability of resorting to a complicated and uncertain form of treatment when simpler and more efficient methods are available.
- (9) The fact that pyorrhea can be cured by instrumentation, providing only that it be skilfully done.

When dentists realize that pyorrhea is a preventable disease; that, in its early stages, it is easily and permanently cured; that only those cases are hopeless that are long neglected; that no drug or vaccine ever will, of itself, cure the disease, and that dependence must be placed upon local treatment, they will have taken the first step toward eliminating, from the mouths of their patients, the chief of mouth infections.

[*Dental Items of Interest*, January, 1916]*Contents**Exclusive Contributions*

The Compressed-Air Obtunder. By Raymond E. Ingalls, D.D.S.

Prosthodontia

Technique for a Simple Bridge, By Herman E. S. Chayes, D.D.S.

Orthodontia

Report of Cases Given Before the Annual Meeting of American Society of Orthodontists at Toronto, Ontario. By W. G. Barr, D.D.S.

Reports of Clinics Before the American Society of Orthodontists at Toronto, July, 1914. Demonstration. By Victor Hugo Jackson, M.A., M.D., D.D.S.

Society Papers

Some Suggestions in Securing Adequate and Uniform Dental Legislation. By Homer C. Brown, D.D.S.

The Mission of the International Dental Federation. By N. S. Jenkins, D.D.S.

Some Refractories Used in Dentistry. Guy Stillman Millberry, D.D.S.

The Educational Value of Oral Hygiene in the Army. Edwin Payne Tignor, M.D., D.D.S.

The Importance of Mouth Hygiene During Infancy and Early Childhood. By Horace L. Howe, D.D.S., D.M.D.

[*The Dental Summary*, December, 1915]*Contents*

*Precancerous Conditions of the Face and Mouth. By John W. Means.

Porcelain-faced Molar Crown. By R. J. Rinehart.

Inlays, Gold and Synthetic Cement Restoration. By S. F. Jacobi.

The Care of the Deciduous Teeth. By I. W. Copeland.

The Business Side of Dentistry. By W. A. Meis.

Modelling Compound-Plaster Impressions. By T. D. Dow.

Prevention and Reproduction. By William Conrad.

Conductive Anesthesia. By George T. Gregg.

Wanted—Better Dentists. By Frederic R. Henshaw.

President's Address. By A. W. McCullough.

Prohibitive Dentistry. By Edwin S. Hulley.

Editorial

Old Time Dentists.

PRECANCEROUS CONDITIONS OF THE FACE AND MOUTH

By JOHN W. MEANS, D.D.S., M.D., COLUMBUS, OHIO

First: Most cancers of the face and oral region have in the beginning passed through a benign stage which is termed precancerous.*Second:* One of the most significant things in the study of cancer is

the fact that the cells making up this growth in no way differ from the young cells which are normally elaborated to repair any defect.

Third: There are certain conditions which are commonly benign but which are very prone to become malignant.

Fourth: We cannot tell which one will become cancer and which will remain benign; nor can we tell the time at which the change has occurred.

Fifth: One hundred per cent. cures result from removal in the pre-cancerous and even the early cancerous stage and a rapid decrease in this percentage follows procrastination.

Sixth: Removal by surgical means is by far the safest method and is practically without disfigurement or inconvenience.

In conclusion, then, let me emphasize the thought that the responsibility of the dentist is greater than that of the physician in that his work brings him in more frequent contact with the lesions of the oral cavity.

[*The Dental Summary*, January, 1916]

Contents

- The Shoulder Crown. By George S. Hershey.
 Gold Inlays as Bridge Abutments. By H. U. Shepherd.
 Malplaced and Impacted Third Molars. By L. G. Noel.
 Root Canal Filling. By H. L. Werts.
 Cast Base Dowel Crowns vs. Ground Joint and Shell Crowns. By J. A. Gardner.
 Porcelain-Jacket Crown. By George T. Gregg.
 A Plea for More Efficiency and Better Fees. By Charles A. Tavel.
 A Sane System of Keeping Burs. By R. C. Simmons.
 Crown and Bridge Work. By W. O. Hulick.
 Advice to Those About to Wear Artificial Teeth. By D. W. Barker.
 Mouth Infection as a Source of Systemic Disease. By Frank B. Walker.
 The Sterilization of Dental Instruments. By H. E. Hasseltine.
 Distilling Apparatus. By M. M. Brown.
 *A Cleft Palate Case. By G. B. Speer.
 Mandibular Conductive Anesthesia. By H. F. Koontz.
 Report of Committee on Dental Literature. By A. C. Barclay, T. A. Hogan, and J. D. Whiteman.
 Dentistry, in its Progress Through the Century, to Stomatology as a Science. By James Truman.
 A Loose Pin Banded Crown for Upper Lateral Incisors. By B. A. Wright.
 A Great National Movement. By W. G. Ebersole.
 Some Reminiscences. By W. J. Burger.
 Prophylaxis. By Franklin B. Roberts.

Editorial

The Recent Meeting of the Ohio State Dental Society.
 Research Institute of the National Dental Association.
 Special American Hospital in Paris for Wounds of the Face and Jaws.

A CLEFT PALATE CASE

BY DR. G. B. SPEER, LOS ANGELES, CALIFORNIA

Let us say Case No. 1, Donald —, age 22, came to my office November, 1914; had two rubber vellums, was never able to wear either with comfort, in either talking or eating; in fact, could talk plainer without. After examination he followed my directions and went to the Angeles Hospital. Next morning at eight o'clock, I did a Brophy operation. He remained in the hospital one week, went home and reported to my office for removal of lead plates and sutures. He now can talk to strangers and be understood. In his own words, he says he thinks a school teacher can now understand him and he is going to go to night school. He also says people do not notice his lip any more and he can whistle, a thing he always wanted to do but could not.

When I look at this result and I wonder why at this age of human progress and surgical successes, when we can almost say a man's success is only limited by his imagination, for we must remember that he who seeks to discover must first learn to imagine, and the surgeon's hand only does the work guided by the imagination brain, and all that is necessary is to look into that mouth and imagine the shape that palate should be. Then with his hands he constructs out of the tissues already there a palate, shaping it as it should be, true to nature, and as the potter modeling his clay has to allow a sufficient excess to allow for the shrinkage, so we allow for the contractions in the healing, and we have a vellum worthy of the name; and as I pen these few words, there arises in my memory a vision of a kindly face, surmounted by gray hair and I can almost see the kindly eyes and hear the kindly voice of Doctor Brophy, the originator of the Brophy operation, saying that the time for rubber vellums was past years and years ago, and I go further and say there never was a time for them, for surgery should have preceded them, and there would never be need or cause for such an article and rubber vellum, germ-breeding pens would never have been heard of.

STORY BUILDING

PROPHYLAXIS*

BY DR. FRANKLIN B. ROBERTS, PITTSBURG, PA.

A prophylaxis treatment requires time and in order to give the patient a thorough treatment the fee charged must be in accord with the time necessary to do the work thoroughly. First of all, remove all deposits. A mixture of carmi cleanser, glycerine, a drop of essence of peppermint and, in some cases, a few drops of peroxide I find makes a good paste for polishing. A little rubber cup made by Young & Co., I find excellent

*Clinic at Odontological Society of W. Pa., 1915.

for use with the engine. This little cup holds the paste, does not cut or irritate the gum, is soft and not harsh and still removes all stains. The disclosing solution is used after which all surfaces are gone over with the hand polisher and wooden points. For deep cusps the little brush used on the engine is useful. The approximal surfaces can be polished very thoroughly by using the Kuroris silk ribbon smeared with the paste. For the high polish the carmi lustro is used, keeping both tooth and lustro dry. The mouth is now thoroughly syringed with an antiseptic solution and your time is well spent. This treatment, in my experience, I find much appreciated by my patients, and should be repeated every two or three months as the case may be to give the patient the best results.

[*The Dental Outlook*, January, 1916]

Contents

Original Communications

*Importance of X-Ray Diagnosis in Dentistry. By A. M. Nodine, D.D.S.

Discussion of Dr. Nodine's Paper. By Dr. L. Harris.

The Regents, Dental Education and the Allied Dental Council. By M. William, D.D.S.
Dental College by next October.

Monthly Report of Legislation Committee of the Allied Dental Council.

Editorial

1916—A Retrospect and a Forecast.

Letters to the Editor.

Book Review

Simplex Handbook of Dental Materia Medica and Therapeutics.

Students' Department.

Society Activities.

IMPORTANCE OF X-RAY DIAGNOSIS IN DENTISTRY

BY ALONZO MILTON NODINE, D.D.S.

Oral Surgeon and Dental Consultant, French Hospital; Assistant Dental Radiologist, New York Throat, Nose, and Lung Hospital

In the field of oral surgery, we find the wrecks and wreckage of careless, unsanitary, septic, and sometimes almost criminal dentistry. I find almost 75 per cent. of the oral surgery I do is the result of bad dentistry.

When these patients come to the oral surgeon—the Court of Last Appeal—to save their health and perhaps their life, imagine the responsibility when perhaps the skilled efforts of all others of the healing art have given no relief. Imagine the carnage that would ensue did the oral

surgeon not first have radiographs of the teeth and jaws, charts, and surveys of these organs.

It would seem almost impossible for oral surgery to have attained the high standard of excellence it now has attained if the use of the X-ray had been denied it.

The limitless conditions in which radiographs serve the oral surgeons are too numerous to mention. But oral surgery answers that question too frequently asked, "What are we going to do with those teeth whose root canals we cannot fill?"

Oral surgery tells us to fill those canals as far as possible, and then resect the roots. Oral surgery also answers that other question asked, "What are we going to do with those teeth which we cannot cure of a chronic apical abscess?" Disinfect and fill the root canals, and oral surgery will cut out the granuloma and resect the septic eroded root end.

But only by the frequent and consistent employment of the X-ray is it possible for the oral surgeon to know how far the canal is filled and the extent of the apical infection.

[*The Texas Dental Journal*, December, 1915]

Contents

Original Communications

Prevention of Decay.
Oral Surgery.
Cotton and Explosives.

With Our Contemporaries

A Consideration of Some of the Present Tendencies in Dentistry.
Pellagra.
The Rotary Code of Ethics for Business Men of all Lines.
Personal Observations on the Brophy Plan of Dealing with Complete Clefts of the Lip and Palate.
Tests of Leaking Amalgam Fillings.
Cavity Toilet Preparations to the Insertion of Synthetic Porcelain.

[*The Dental Register*, December, 1915]

Contents

Event and Comment.
Professional Ideals.
The Tooth Brush.
How Should Dentists Advise?
The Human Mouth.
Bibliography.
Index to Volume LXIX.

[*Oral Health*, December, 1915]

Photograph—The late W. T. Stuart, M.D.

*Centralized Dental Clinics for Children. By Harold DeW. Cross, D.M.D., Boston.

*Localized Dental Clinics for Children. By Wallace Seccombe, D.D.S., Toronto.

Color of the Teeth. By F. H. Orton, D.D.S., Minneapolis.

Interproximal Space and Tooth Form. By Charles E. Woodbury, D.D.S., Council Bluffs.

Fibrous Foodstuffs and Certain Diseases.

Obituary.

Active Service Roll.

Photograph, Dr. Harvey J. Burkhart, Director Rochester Dental Dispensary.

Editorial.

CENTRALIZED DENTAL CLINICS FOR CHILDREN

BY HAROLD DEW. CROSS, D.M.D.

(*Director, The Forsyth Dental Infirmary, Boston*)

The Forsyth extends its benefits to all children of Boston and its suburbs under sixteen years of age whose pecuniary circumstances preclude their securing the services of a private dentist. At the present time this pecuniary eligibility is based upon maximum of \$4 per week per person in the family. That is, if the family income is \$20 for a family of five, the children of the family become eligible. The number of children at present cared for is between four and five hundred per day. This number will be gradually increased. A charge is made of five cents for each visit.

The question of localized clinics was very carefully considered by the Trustees before the plan of a central clinic was finally adopted. The local clinics were considered unsatisfactory because (a) It was exceedingly difficult to control the attendance of the operator. They were liable to come late, to leave early, and possibly not to come at all. Very strict supervision was found necessary to improve punctual and full attendance. (b) It was almost impossible to exact an equal standard of work done in the different clinics. This difference of standard quickly became known and clinics were patronized or neglected according to the standard of work and equipment supplied. (c) A suitable equipment meant an expensive reduplication of plant. This necessarily occurred no matter how inadequate the equipment of a given plant might be. It further meant an idle equipment in many instances for certain hours of the day. (d) It was found that the trained dental practitioner was obliged to waste a greater or less part of his time in clerical or nursing work and by attending to other duties than his strictly professional services. (e) It was found to be exceedingly difficult to regulate the purchase and cost of supplies and to check their application. (f) And lastly, it was found that the providing of hygienic and septic quarters was almost impossible.

LOCALIZED DENTAL CLINICS FOR CHILDREN

BY WALLACE SECCOMBE, D.D.S., TORONTO

The advantages of Dental Clinics established in the school buildings may be summarized as follows:

1. The plan is less costly.
2. School discipline gives control of child for treatment as well as follow-up service.
3. Through the assistance of the school teacher, the daily cleansing of the mouth by the child may be checked up.
4. In the acquiring of good dental habits of mastication and oral cleanliness, the child is usually influenced more by the teacher than by the parent.
5. Complete dental statistics regarding oral conditions are only to be obtained through the systematic dental examination of children in the school building.
6. Schools are becoming more and more educating centres for the community in which they are situated.
7. Dental operators are under same regulations regarding hours and discipline as are members of the teaching staff.

Disadvantages of a central clinic as they appear to the writer are:

1. The necessity of children traveling long distances with the consequent expense of transportation. Ten cents for car fares each visit is a hardship to those who are too poor to pay for regular dental service.
2. In cases of younger children, the inconvenience and expense of an older person accompanying the child each sitting.
3. Lack of control of the child regarding subsequent sittings and the impossibility of the daily follow-up.
4. Lack of coöperation between school, home and dental clinic.

In presenting these facts for your consideration, the writer has no thought of minimizing the possible advantages of a central clinic plan, but would urge, in view of our experience in Toronto, the many advantages of following the school system which has already been thoroughly tried across the water and found most practical and efficient.

[*New York Medical Journal*, December 25, 1915]

DECAYED TEETH AND CANCER

BY ALONZO MILTON NODINE, D.D.S., NEW YORK.

Oral Surgeon and Dental Consultant, French Hospital; Assistant Dental Radiologist, New York Throat, Nose, and Lung Hospital

One woman out of seven and one man out of eleven, after the age of thirty-five years die of cancer in England. Cancer is sixth in the list

of diseases that cause death in the United States; there has been an average of 73,800 deaths from cancer for the last ten years. In New York State, in 1913, 9,528 deaths were caused by cancer. Cancer caused over nine times as many deaths as typhoid fever. In 1891, cancer caused 3,000 deaths. In twenty years the death rate has increased 166.66 per cent. If this rate continues for another twenty years, the death rate from cancer will be more than from consumption.

Different estimates indicate that from nine to 26.3 per cent. of all cancers are found on the tongue. Still others declare that one seventh to two fifths of all cancers are found in the mouth, tongue, lips, or jaws. Most of these cancers are on exposed surfaces where they should be discovered early, operated upon, and cured. Equally significant is the estimate that one third to one half of all cancers are found in the stomach and duodenum.

Whatever may be the underlying, undiscovered cause of cancer, there seems to be no question that the exciting cause is irritation. This irritation may be caused by chemicals, burns, injuries, or inflammatory diseased conditions. Dynamite is harmless until irritated; and whatever causes cancer is harmless until irritated. The two regions of the body most subjected to chronic irritation are the mouth and the stomach.

Cancer is one of the diseases for which modern civilization is held responsible. Furthermore tooth decay is the most widespread and prevalent disease for which modern civilization is responsible. Eighty to ninety-eight per cent. of the school children of the United States have decayed teeth, and there is little doubt that the same rate prevails with the adult population. Decayed teeth are due, to a very great extent, to our modern demineralized, devitamized diet, as well as to haste in eating, nervous tension, lack of exercise, methods of cooking, and all that goes with our manner of living.

The particular irritation that is frequently found to cause cancer in the mouth is the sharp edge of a decayed, worn, misplaced, or tartar covered tooth. The constant rubbing of the tongue, cheek, or lips over such a tooth produces an abrasion, an abrasion develops into a sore, and from a sore it may pass on through various stages to cancer. The irritation produced by the sharp edge of a broken or poorly fitting plate, bridge, crown, or filling has caused cancer of the mouth.

Cancerous growths may also spring from the irritated and injured gum surrounding decayed and broken down teeth. Polyps grow from irritated tooth pulps. Bony growths result from chronic inflammation of the covering of tooth roots. Injury to the bony support of teeth by extraction has resulted in the development of cancerous growths in these locations.

The chronic irritation of an abscessed tooth, the irritation of decayed roots, impacted teeth and unerupted teeth, lower the resistance of the surrounding tissue and invite the development of cancer. Diseased and uncleansed teeth and gums are sufficiently irritating to produce inflammation and ulceration of any part of the mouth. It is not unreasonable to believe that conditions such as these produce cancer of the mouth.

That there are other causes which produce cancer of the mouth and jaws is unquestioned, but it must not be lost sight of that in such conditions as have been described lie the possibilities of cancer. In fact, there are records of a great number of cases which show that cancer has developed from such conditions. There is the classical example of General Grant.

In New York State, in 1913, 291 deaths occurred from cancer of the mouth, and in January, 1914, thirty deaths! Mayo, Moynihan, and other surgeons and stomach specialists estimate that 45 to 90 per cent., perhaps all cases of cancer of the stomach, originate at the site of an ulcer of the stomach or duodenum.

Among the most frequent causes of ulcer of the stomach are unmasticated food, too much food, and the constant swallowing of the contents of a diseased and unclean mouth. Food is not chewed or bolted either from habit or haste, or because decayed, diseased, deformed, or deficient teeth make proper chewing difficult, if not impossible.

Large quantities of unchewed food, and the microorganisms and toxins from diseased, decayed teeth and gums injure the lining of the stomach either by impaction or stagnation, or else change or disorganize the production of the digestive secretions. The coating of the stomach also becomes infected during these resting periods between meals, when the hydrochloric acid is not poured into the stomach. The function of the hydrochloric acid is to neutralize, retard, and destroy the dangerous microorganisms and their toxins taken in with food.

The abnormal decomposition of food in the stomach due to the interference with production of the proper amount of hydrochloric acid, results in the manufacture from food of other acids, such as lactic, acetic, and butyric. These make the stomach excessively acid. This highly acid condition is sufficiently irritating to injure the coating of the stomach and cause gastric ulcer. A large amount of food, or hard unchewed food entering such a stomach, the churning movements further increase the irritation already begun by the abnormal acids.

Rosenow has experimentally proved that one particular microorganism found in unhealthy mouths is capable, when carried by the blood, of lodging in the wall of the stomach and producing gastric ulcer.

The employment of the X-ray by the dentist assists in the discovery

of cancerous and precancerous conditions. This diagnostic agent should be more frequently employed by physicians and dentists in all cases of suspicious swellings and enlargements.

A great amount of evidence shows that one of the most certain measures to prevent cancer, either in the mouth or stomach, is sound, clean teeth. Lost teeth should be replaced with artificial substitutes so that food may be properly chewed. In addition, dental defects should be corrected, decayed teeth should be treated and filled, and all unreclaimable teeth or roots removed; and all artificial fixtures, such as bridgework or plates should be made smooth, sanitary, and unirritating. Diseased gums should be treated to prevent the oozing into the mouth of pus and poisonous toxins that are found in such foul conditions. Tartar should be removed from the teeth frequently and thoroughly, and the teeth cleansed and polished by a dentist or dental nurse. Finally, teeth should be brushed carefully and thoroughly with a good tooth paste, powder, or lime water, or lemon juice and water, after eating and upon going to bed.

RÖNTGEN DISCOVERY AND ITS RECENT DEVELOPMENT AND FUTURE POSSIBILITIES

By W. D. COOLIDGE, M. D., SCHENECTADY, N. Y.

Early attempts to show diffraction, refraction, and reflection had all failed. In 1912, Lane predicted that if the X-rays were passed through a crystal, interference effects would be produced just as they are when ordinary light falls on a Rowland grating. The experiment was tried by Freidrich and Knipping and proved completely successful.

Bragg later showed that regular reflection of X-rays can be made to take place from the cleavage surfaces of crystals. A secondary wavelet spreads out from each atom as a primary wave passes over it.

The work of Laue and Bragg has made it possible to measure the wave length of the X-rays, and shows them to be a transverse vibration traveling with the velocity of light and with a wave length about one ten thousandth that of ordinary light.

Moseley and Darwin have found that each element, when placed in the path of X-rays of sufficiently high penetration, gives off secondary rays with a wave length characteristic of the particular substance in question. This serves, not only as a useful method of analysis, but also as the basis of a logical method for grouping the elements.

FUTURE POSSIBILITIES

1. As our source of X-rays become more and more intense, new fields of usefulness are opening up. The germicidal and sterilizing action may be commercially useful in connection with food products, etc.

2. They may be useful as an ionizing agent to bring about chemical reactions.

3. It is now possible to produce cathode rays having a velocity comparable with that of the most rapidly moving beta rays from the radioactive substances, and, at the same time, we get X-rays comparable in penetrating power with the most penetrating gamma rays. We are also able to produce canal rays which are like the alpha rays, except that they have lower velocity. These three, together with metallic lead, constitute the decomposition products of radioactive substances, and it therefore seems possible that we may some day be able to produce these radioactive substances synthetically.

4. As we are now able to put energy into the atom, and as we are now getting more and more of an insight into the structure of the atom, it does not seem too much to hope that we shall some day be able to transmute the elements at will and to store up large quantities of available energy in small masses.

5. It seems probable that such work as that now being done by the physicist, on alpha ray scattering and with the X-ray spectrometer, will lead to much higher efficiency of X-ray production. The desirability of this is obvious when we think that at present we are able to utilize only about 0.2 per cent. of the energy which is put into the tube.

This means that if we could raise this efficiency to 100 per cent. and could suitably direct the rays, we should put into the tube, for say a stomach plate, not four kilowatts, but only eight watts. In other words, we should then need in the tube much less energy than we now consume in the ordinary hand battery flash lamp. I do not mean to give the impression that the work of the physicist has yet revealed a method for making the transformation of electrical X-ray energy much more efficient than it is now; but it does seem probable that with more detailed knowledge of the mechanism of X-ray production, and this means more knowledge of the structure of the atom, that we shall some day be able to help ourselves in this direction.

6. Another dream which should come true some day, is the production of a substance capable of making a screen say a thousand times more sensitive than anything we have now. For relatively little is known about the mechanism of fluorescence. The whole subject is one of the greatest interest and undoubtedly stands in very close relation to the production of secondary X-rays. Seeing, as we now do, the widest range in the fluorescent power shown by different substances, and with the mechanism so little understood, it does not seem too much to hope that the efficiency of this energy transformation may also be tremendously increased. Most, if not all the energy

absorbed by the screen is now transformed, but the amount absorbed is very small.

7. Similarly, it does not seem too much to hope that, with our rapidly increasing knowledge of characteristic radiations, we shall some day see a photographic plate in which a much larger fraction of the X-ray energy is absorbed with a corresponding increase in speed. From the diagnostic standpoint, an increase in screen and plate sensitiveness is perhaps much more to be desired than is a more powerful or more efficient sources of X-rays, for the former would reduce the danger, while the main effect of the latter would be on the pocket book.

8. With the ability to get, as we now can, characteristic radiations of definite wave length, the germicidal and physiological actions can be scientifically studied, with the possibility of finding out whether there is, for a definite purpose, any specificity of action so that a certain cell responds more strongly to a certain wave length than to any other.

[*New York Medical Journal*, January 8, 1916]

[*Presse Médical*. October 25, 1915]

FRACTURES OF THE INFERIOR MAXILLARY BONE IN MILITARY PRACTICE

BY L. IMBERT AND P. RÉAL

From experience with a large number of cases the authors have been led to establish a clinical division into fractures of the anterior group, in which the line of fracture is somewhere between the canine teeth and the midline, and fractures of the posterior group, in which it is lateral to the canine teeth. In the former group the displacement is not sufficient to cause overlapping of the fragments, the teeth on the side of the fracture practically retain their normal relationship to the upper teeth, and the functional result, provided that bony union takes place, is not very bad. In fractures of the posterior group, on the other hand, a symmetry results from overlapping of the fragments. The chin is displaced toward the fractured side and the unaffected side appears more prominent, though regular in profile. Again, there may be abnormal prominence on the affected side, due partly to outward displacement of the short fragment, partly to swelling of the soft tissues, and perhaps partly to the presence of callus. Behind this prominence, the profile appears flattened, owing to obliquity of the short fragment and disappearance of the angle of the jaw from the surface. An important sign of this variety of fracture is elicited by taking three points on either side of the jaw—the angle, condyle, and midline—and joining these by imaginary lines.

[*Medical Record*, January 8, 1916]

FECAL INFECTIONS

Drs. W. C. Mayes, W. Wilson, and C. F. Wilson of Memphis, from their limited experience, drew the following conclusions: (1) That many diseases, the etiology of which has been obscure, are undoubtedly due to metastasis or absorption of toxins from a primary focal infection. (2) We do not believe that we have done our whole duty to a patient by simply treating the results of a metastatic infection or the symptoms of toxic absorption. (3) It is absolutely essential to remove the primary focus when possible or at least overcome the infection in the same in order to conserve the best body economy. (4) That in the diseases due to focal infection, if a cure is not effected by the removal of a diseased focus, or if further metastasis occurs, the focus removed was not the causative or only causative focus, and a further search should be made with a view to its removal or cure. (5) That if the focus cannot be removed, or the infection in the same controlled, for anatomical reasons, often the removal of a diseased tonsil, draining an apical dental abscess, or accessory nasal sinuses will allow the body economy to so recuperate that a cure will occur in the original offending focus. (6) That an innocent appearing tonsil may be the focus, and that the search for the offending focus is not complete without exhausting every aid of the laboratory, X-ray, and our own diagnostic ability.

[*New York State Journal of Medicine*, December, 1915]

CONCERNING MOUTH INFECTIONS AS RELATED TO SYSTEMIC DISEASE

By S. MARX WHITE, B.S., M.D.

The problem of eradication of dental foci of infection differs radically from that presented in the tonsils. In the case of the tonsil, the clinical evidences of infection may be difficult to secure. One who has systematically attempted to eradicate focal infections will be often called upon to insist upon the removal of a fairly innocent-looking pair of tonsils even in the face of statements by competent nose and throat surgeons that the tonsils do not appear diseased. We frequently see infection arising from tonsils which are small, buried and adherent to the pillars and that show no external sign of inflammation, except possibly a streak of reddening along the pillar. Such tonsils are as frequently the source of systemic dissemination as the frankly and evidently inflamed ones. Where such tonsils exist and where there is no clear evidence of some other focal infection, the need for tonsillectomy rests more upon whether there is evidence of systemic infection from some focus than upon the apparent condition of the tonsil itself. As a result of this attitude we

have been frequently rewarded by having the pathologist, after removal of the tonsils, find definite evidences of active inflammation were lacking.

At the present time, we have no more definite clinical criteria of infection in the tonsils than I have outlined above. The demonstration of streptococci and other organisms on the surface or in the crypts of tonsils in clinical cases is conclusive only of their existence there. No certain means of securing uncontaminated cultures from the depth of tonsils, clinically, is known to the writer.

The case is very different as concerns the teeth and jaws. Here the dentist can, by proper heat and electricity tests, determine whether teeth are living ones or not: and the röntgenogram, with proper technic and experience, can give evidences suggestive of infective processes about the teeth or anywhere in the tissues of the jaw. The technic and details of röntgenographic study are matters for the technician, and a large experience is necessary before a properly qualified opinion can be expressed.

While the ordinary root abscess is easy of recognition, a great deal remains to be learned as to the significance of the minor grades of absorption about the roots. It appears to be true also that in many instances a focus of infection has been absorbed, and restitution of the tissues of the alveolar process has occurred, leaving a modified röntgenographic field. The nature and significance of these modifications still remains to be worked out.

It would appear to be a simple matter, once abscesses or infected teeth have been found, to decide what procedure should be adopted; but, on the one hand, the clinician, anxious to eradicate all foci of infection, demands that infected teeth be extracted: the dentist, anxious to retain the best occlusal surfaces and masticating mechanism for the patients, desires to remove only the infected tissues and retain as much as possible of the tooth. The application to each individual case should be determined, not by the physician alone, nor by the dentist alone, but by both together, giving proper consideration to the needs of the patient, the possibility of the dental procedures to eradicate all infection and still retain a masticating surface, and finally, the ability of the individual dental operator involved, so far as securing results is concerned.

Dentists have built up a marvelous mechanical perfection in crown and bridge work, but at the same time have developed conditions inviting infection of the alveolar process. Because so often free from local symptoms and signs, this infection has remained hidden until brought to light by the röntgenogram. The infection must be eradicated, but so far as possible, our patients must be spared the inconvenience and disability of artificial teeth, and the conservative dentist must learn as far as possible

to eradicate the infection and spare the tooth. In this problem the physician has a vital interest.

One additional point needs particular attention by the physician. It is that, if extraction or other operative work is to be employed, care should be exercised not to overdo or to attack too many foci at one time. In this field the infections are usually very chronic, and there is no urgent demand for the immediate eradication of all foci.

Two considerations demand that all foci should not be eradicated at once. The first is that in case vaccines or bacterins are needed, if all foci have been eradicated and attempts at cultivation of bacteria have failed or gone awry, material for culture can no longer be secured.

Secondly, the measures necessary for elimination of the infection frequently stir up and increase the infection at the time and there is considerable danger, particularly in heavily infected individuals, of opening up many channels of infection, of severe local reactions, sometimes with necrosis, and frequently of aggravating a multiple joint infection, or even an endocardial or myocardial involvement. These dangers are real, and we have had several illustrations of the folly of attempting to eradicate multiple foci at one time. Here again it is necessary that the physician and dentist confer and take fully into account such possibilities.

DEATHS

HARRISON, Dr. H. H., died at Wheeling, W. Va., December 17, 1915, in his 76th year.

ALLEN, Dr. Chas. H., died December 30th, 1915, at New Milford, Conn., from the result of an accident. Dr. Allen was born at Norwalk on March 8, 1859 and came to New Milford 35 years ago to practise dentistry. He lived a quiet, forceful life, building up a reputation for efficiency in his profession. He is very much mourned by his many friends.

ERVIN, J. J. Dr., died December 23rd, 1915, at Elmira, N. Y. Dr. Ervin was born in Elmira, N. Y., June 1st, 1886. He was educated in the schools of Elmira and graduated from the University of Pennsylvania in 1907.

He was a member of the Elmira Dental Society, Sixth District Society of New York and the National Dental Society.

AN INVITATION

The National Dental Association and all ethical dentists will be heartily welcomed by the profession, the business men and the citizens of Louisville at the twentieth annual convention of this organization, to be held in our city four days commencing Tuesday, July 25, 1916.

The First Regiment Armory, in whose 54,000 square feet of floor space the exhibition will be held; the public school building, in whose thirteen commodious rooms the clinics will be held; Keith's and Macauley's theatres, the auditoriums of the Seelbach and Watterson hotels, where section meetings will be held, are within a radius of 100 yards, and with the approval of President Hinman, the most convenient arrangements ever provided have been made for the forthcoming dental convention.

The Kentucky Dental Association will hold its annual meeting, to close Monday, July 24th. The National Association of Dental Examiners will hold its convention, arranging to close Monday, July 24th. The three Greek letter dental fraternities will hold their annual conventions Monday July 24th.

Louisville is the ideal convention city of America, convenient of access from all points of the country, abundant in its hotel accommodations and affording innumerable side attractions of interest.

The local committees are planning a series of entertainments commensurate with Kentucky's reputation for hospitality, and the ladies especially who attend the convention will be guests at innumerable social functions.

Local Committee—W. T. Farrar, Chairman, 519 Starks Building, Louisville, Ky.; John H. Buschemeyer, Mayor of Louisville; Fred W. Keisker, President Louisville Convention and Publicity League; Thos. J. Smith, President Louisville Board of Trade; Richard H. Menefee, President Louisville Commercial Club; W. H. Stacy, President Kentucky State Dental Association; H. B. Tieson, Max M. Ebel, W. M. Randall, R. F. Canine, J. W. Clark, E. A. R. Torsch, I. H. Harrington, W. E. Grant, Ed. M. Kettig.

FUTURE EVENTS

February 11-12, 1916.—The thirty-third Annual Meeting of the Minnesota State Dental Association, at the University of Minnesota, Minneapolis.—MAX E. ERNST, 614 Lowry Bldg., St. Paul, Minn., *Secretary*.

February 16-18, 1916.—The Tenth Annual Clinic, Manufacturers' and Dealers' Exhibit of the Marquette University Dental Alumni Association, Milwaukee Auditorium, Milwaukee, Wis.—V. A. SMITH, *Secretary*.

February 18-19, 1916.—Buffalo Alumni Association, Hotel Iroquois, Buffalo, N. Y.—GUY M. FIERO, Buffalo, *Chairman Executive Committee*.

February 21-22, 1916.—Golden Jubilee of the Washington University Dental School, at the Dental School, 29th and Locust Sts., St. Louis, Mo.—H. M. FISHER, Metropolitan Bldg., *Secretary*.

February 23-24, 1916.—Central Pennsylvania Dental Society, Johnstown, Pa.—C. A. MATTHEWS, *Chairman Exhibit Committee*.

March 14, 1916.—Fox River Valley Dental Society, Appleton, Wis.—R. J. CHADY, Oshkosh, Wis., *Secretary*.

March 20-26, 1916.—The Tri-State Post Graduate Dental Meeting (Missouri, Kansas, Oklahoma), Kansas City, Mo.—C. L. LAWRENCE, Enid, Okla., *Secretary*.

March 23-25, 1916.—Sixth District Dental Society, Binghamton, N. Y., Hotel Bennett.—WILLIAM A. OGDEN, *Chairman Arrangement Committee*.

March 25, 1916.—Maryland State Dental Association, Baltimore, Md.—F. F. DREW, Baltimore, Md., *Secretary*.

- April 4-7, 1916.—Dental Manufacturers' Club, Chicago, Ill. Meeting in the Banquet Hall, Auditorium Hotel.—*Chairman Exhibit Committee*, A. C. CLARK, Grand Crossing, Chicago.
- April 11, 1916.—Alabama Dental Association, Mobile, Ala.
- April 13-15, 1916.—Michigan State Dental Society, Detroit, Michigan.—CLARE G. BATES, *Secretary*.
- April 12-14, 1916.—West Virginia State Dental Association, Kanawha Hotel, Charleston.
- May, 1916.—Lake Erie Dental Association, Erie, Pa.—J. F. SMITH, *Secretary*.
- May, 1916.—Susquehanna Dental Association, Scranton, Pa.—GEO. C. KNOX, 30 Dime Bank Bldg., Scranton, Pa., *Recording Secretary*.
- May, 1916.—Indiana State Dental Association, Claypool Hotel, Indianapolis, Ind.—A. R. ROSS, *Secretary*.
- May 2-4, 1916.—Iowa State Dental Society, Des Moines, Ia. H. A. ELMQUIST, Des Moines, Ia., *Chairman of Exhibit*.
- May 3-5, 1916.—Massachusetts Dental Society, Boston, Mass.—A. H. ST. C. CHASE Boston, Mass., *Secretary*.
- May 9-10, 1916.—North Dakota State Dental Association.—A. HALLENBERG, Fargo, N. Dak., *Chairman Exhibit Committee*.
- May 9-12, 1916.—Texas State Dental Association, Dallas, Tex.—W. O. TALBOT, Fort Worth, Tex., *Secretary*.
- May 9-12, 1916.—Illinois State Dental Society, Springfield, Mass.—HENRY L. WHIPPLE, Quincy, Mass., *Secretary*.
- May 11-13, 1916.—Dental Society of the State of New York, Hotel Ten Eyck, Albany, N. Y.—A. P. BURKHART, 52 Genesee St., Albany, N. Y., *Secretary*.
- June, 1916.—Florida State Dental Society, Orlando, Fla.—M. C. IZLAR, *Corresponding Secretary*.
- June 1-3, 1916.—Northern Ohio Dental Association, Cleveland, O.—CLARENCE D. PECK, Sandusky, O., *Secretary*.
- June 8-10, 1916.—Georgia State Dental Society, Macon, Ga. M. M. FORBES, Candler Bldg., Atlanta, Ga., *Secretary*.
- June 13-15, 1916.—Connecticut State Dental Association, Hotel Griswold, New London, Conn.—ELWYN R. BRYANT, New Haven, Conn., *Secretary*.
- June 20-22, 1916.—New Hampshire Dental Society, Lake Sunapee, Zoo-Nipi Park Lodge,—Lisbon, N. H.—J. E. COLLINS, *Chairman Exhibit Committee*.
- June 27-29, 1916.—Pennsylvania State Dental Society, Pittsburgh, Pa.—LUTHER M. WEAVER, 7103 Woodland Ave., Philadelphia, Pa., *Secretary*.
- June 28-30, 1916.—North Carolina State Dental Society, Asheville, N. C.—R. M. SQUIRES, Wake Forest, N. C., *Secretary*.
- July 11, 1916.—South Carolina State Dental Association, Chick's Springs, S. C.—ERNEST C. DYE, Greenville, S. C., *Secretary*.
- July 11-13, 1916.—Wisconsin State Dental Society Meeting, Wausau.—THEODORE L. GILBERTSON, *Secretary*.
- July 12-15, 1916.—New Jersey State Dental Society, Asbury Park, N. J.—JOHN C. FORSYTH, Trenton, N. J., *Secretary*.
- July 20-23, 1916.—American Society of Orthodontists. Address communications to F. M. CASTRO, 520 Rose Bldg., Cleveland, Ohio.
- July 25-28, 1916.—National Dental Association, 1st Regiment Armory, Louisville, Ky.—OTTO U. KING, Huntington, Ind., *Secretary*.
- October 18-20, 1916.—Virginia State Dental Association, Richmond, Va.—C. B. GIFFORD, Norfolk, Va., *Corresponding Secretary*.